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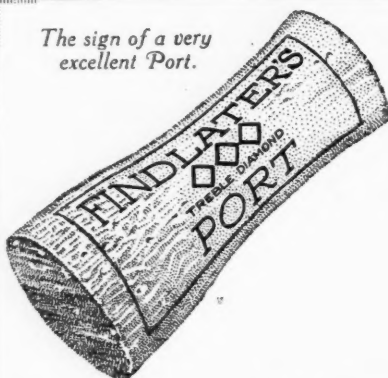
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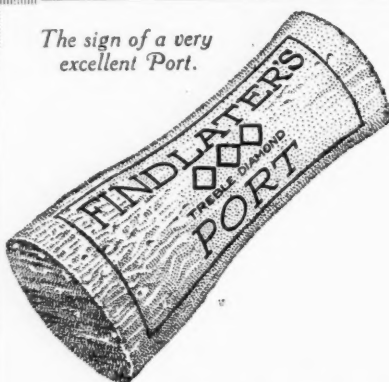
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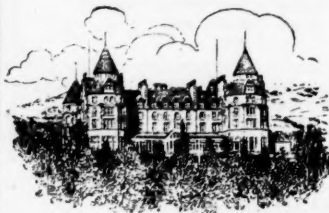
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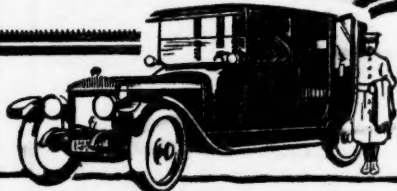
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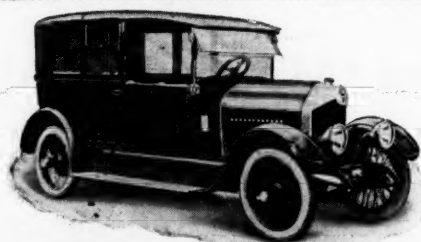


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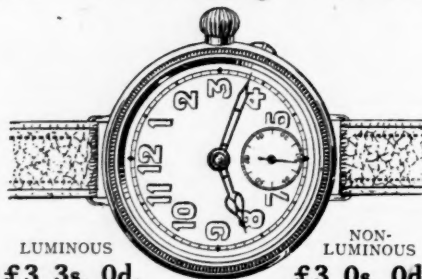
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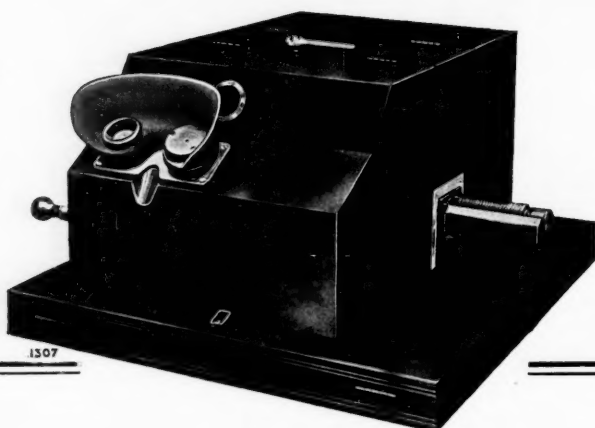
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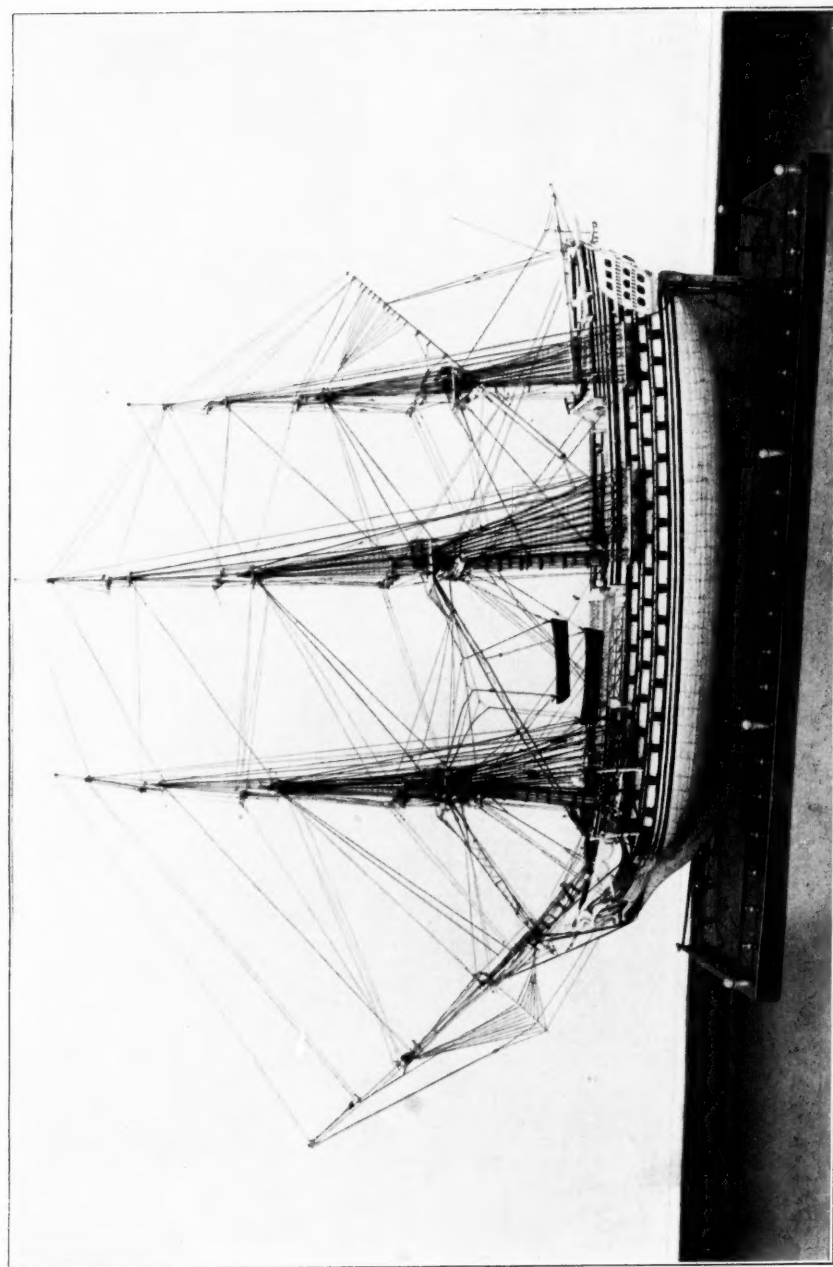
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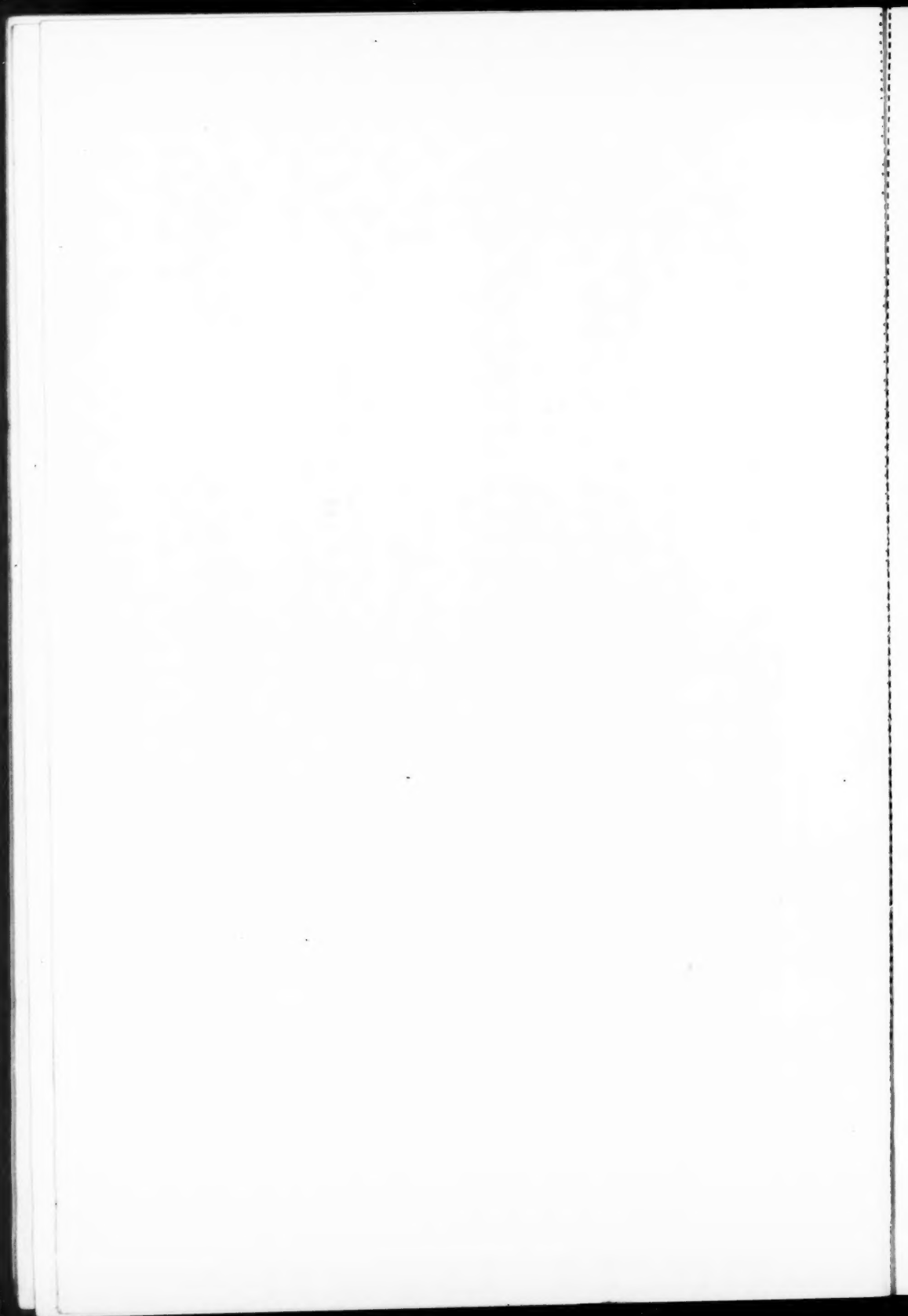
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SECRETARY'S NOTES.

MAY, 1924.

I.—Royal Visit.

Her Majesty the Queen graciously visited the Institution's Museum on Monday, 17th March, accompanied by Colonel The Marquess of Cambridge, G.C.B., G.C.V.O., C.M.G., A.D.C. Her Majesty expressed her great satisfaction in the way in which the Museum is maintained.

II.—Council.

At the Anniversary Meeting on 4th March the following Officers were duly elected Members of the Council:—

Lieut.-General Sir Noel Birch, K.C.B., K.C.M.G.
Lieut.-General Sir Philip Chetwode, Bart., K.C.B., K.C.M.G., D.S.O.
Major-General H. D. Farquharson, C.M.G., Royal Marines.
Captain W. F. Caborne, C.B., R.D., R.N.R.
Colonel Lord Amptill, G.C.S.I., G.C.I.E.
Brig.-General The Earl of Lucan, K.B.E., C.B., T.D., A.D.C.
Colonel The Duke of Northumberland, C.B.E., M.V.O.
Colonel C. W. Trotter, C.B., T.D.

III.—Chairmen of the Council.

Admiral Sir R. G. O. Tupper, G.B.E., K.C.B., C.V.O., has been re-elected Chairman of the Council for 1924-1925.

General Sir E. G. Barrow, G.C.B., G.C.S.I., has been elected Vice-Chairman for 1924-1925.

IV.—Council Committees.

The Committees of the Council are now composed:—

Finance.—Colonel C. W. Trotter, C.B., T.D.; Lieut.-Colonel A. S. Bates, D.S.O., T.D.; Captain W. F. Caborne, C.B., R.D., R.N.R.; Colonel C. H. Colvin, C.B., D.S.O.; Brig.-General The Earl of Lucan, K.B.E., C.B., T.D., A.D.C.; Air Commodore E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.C.; and Lieut.-General Sir H. S. G. Miles, G.C.B., G.C.M.G., G.B.E., C.V.O.

Journal and Library.—General Sir E. G. Barrow, G.C.B., G.C.S.I.; Vice-Admiral Sir H. H. Bruce, K.C.B., M.V.O.; Major-General Sir J. T. Burnett-Stuart, K.B.E., C.B., C.M.G., D.S.O.; Brig.-General J. E. Edmonds, C.B., C.M.G.; Lieut.-General Sir J. A. L. Haldane, G.C.M.G., K.C.B., D.S.O.; Professor Sir Charles Oman, K.B.E., M.A., F.S.A., M.P.; Air-Commodore E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.C.; and Captain C. M. Staveley, C.M.G., R.N.

Museum and General Purposes.—Captain W. F. Caborne, C.B., R.D., R.N.R.; Colonel Lord Amptill, G.C.S.I., G.C.I.E.; Colonel C. H. Colvin, C.B., D.S.O.; Lieut.-General Sir Noel Birch, K.C.B., K.C.M.G.; General Lord Horne, G.C.B., K.C.M.G., A.D.C.; and Major-General The Earl of Scarbrough, K.C.B., T.D., A.D.C.

V.—New Members.

The following Officers joined the Institution during the months of February, March, and April, viz. :—

Captain A. F. B. Cottrell, D.S.O., R.F.A.
 Captain O. J. F. Fooks, 14th/20th Hussars.
 Major R. H. Allen, M.C., R.F.A.
 Captain I. Campbell, I.A.
 Lieutenant N. R. Kennedy, M.C., The Royal Scots.
 Captain J. S. Lunn, East Surrey Regiment.
 Captain W. H. Pike, I.A.
 Lieutenant H. J. T. Riggs, Hampshire Regiment.
 Major G. R. Dubs, M.C., King's Royal Rifle Corps.
 Lieutenant Viscount Falmouth, late Coldstream Guards.
 Captain F. S. Halliday, R.G.A.
 Captain T. B. Gravely, Royal Corps of Signallers.
 Lieutenant K. J. Wilson, Queen's Royal Regiment.
 Brig.-General G. Cockburn, C.B.E., D.S.O., late Rifle Brigade.
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 Captain R. Staveley, D.S.O., R.F.A.
 Captain J. S. Steele, M.C., Royal Ulster Rifles.
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 Lieutenant E. R. Condor, R.N.
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 Captain J. W. Cobb, 13th/18th Hussars.
 Captain U. S. Hopkins, Royal Berkshire Regiment.
 Major N. W. Humphreys, Manchester Regiment.
 Major J. Northcott, Staff Corps, Australian Forces.
 Lieutenant E. W. Milford, M.C., Lincolnshire Regiment.
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VI.—Letters.

Members are reminded that the Council can accept no responsibility in the matter of letters and telegrams addressed to them at the Institution, there being no arrangement for the reception and forwarding of letters, etc.

VII.—Cleaning of the Museum and the Institution Building.

The Institution and Library will be closed for cleaning from Monday, 11th August, to Saturday, 23rd August, inclusive, but the Museum will remain open.

VIII.—Old Comrades' Associations.

The Council grant free admission to the Museum to members of Old Comrades' Associations on the days when such gatherings are held. Applications for such parties should be made to the Secretary, stating date and numbers.

IX.—Important Standing Order.

"A Member in arrear with his annual subscription after 31st March of each year shall not be entitled to use the Institution buildings, receive the *Journal*, or participate in any of the privileges accorded to Members."

X.—New Members.

A form is inserted in every *Journal* for the benefit of those Officers who may wish to join the Institution. The filling up of the form and its transmission to the Secretary is all that is necessary in the case of officers whose names appear, or have appeared, in the Official Lists. The Council hope that Members will circulate these forms.

XI.—Receptions, &c.

The Council desire to intimate that the Museum is available for receptions and conversaziones of recognised Learned and Scientific Societies and similar Institutions: for terms apply to the Secretary.

The Theatre and a large Committee Room are also available for meetings of naval, military, and other societies, the fees being nominal.

XII.—Museum Purchase Fund.

This Fund has been opened with the object of purchasing suitable exhibits which are from time to time offered to the Museum, or which are put up for sale at various auctions. The Council hope it will receive support from Members of the Institution who are interested in the Museum.

	£	s.	d.
Amount already acknowledged	60	13	6
B. E. Sargeaunt, Esq., M.V.O., O.B.E., F.S.A. ...	3	3	0
	64	16	6
<i>Less</i> expended to date	35	0	10
	£29	15	8

XIII.—The Museum.

The amount taken for admission to the Museum during the past quarter was:—

£50 17s. in February.

£56 13s. 6d. in March.

£85 16s. 0d. in April.

ADDITIONS.

- (7793) Officer's full dress tunic, silver pouch, shoulder belt and busby lines of the 3rd King's Own Hussars.—Given by Major F. J. Du Pré, D.S.O., late 3rd Hussars.
- (7794) An Arabic Treatise on Mahdism by Esk Sheikh El Hussein Ibrahim Wad-Ez-Jahra, lithographed and bound in Omdurman. It was taken among the Khalifa's correspondence after the Battle of Omdurman, 2nd September, 1898, and given to H.R.H. The Princess Henry of Battenberg by Colonel Sir Reginald Wingate.—Given by H.R.H. The Princess Beatrice.
- (7795) Two wooden door-plates which belonged to H.M.S. "Good Hope," sunk at the Battle of Coronel, 1st November, 1914: on the back of the plates the dockyard marks can still be seen. They were picked up on the shore by the donor in 1918, the ship having been cleared of her woodwork at Port Stanley.—Given by Major T. J. Newnham.

- (7796) Miniature of a French Lancer Cap, Napoleon I. period.—Given by Captain H. N. Jackson.
- (7797) The General Service Medal for the Peninsula War with 3 clasps of Sergeant John Lamb, 29th Foot, who was subsequently awarded a Commission and died a Military Knight of Windsor.—Given by Major J. J. G. Lamb, V.D.
- (7798) An early autograph letter, dated 14th July, 1803, of Field-Marshal The Duke of Wellington, when holding the rank of Major-General; it concerns the state of certain Military Buildings erected in Serin-gapatam.—Given by General Sir E. G. Barrow, G.C.B., G.C.S.I.
- (7799) A Miniature in gold frame of an Officer of one of the flank companies of the 62nd Regiment of the period between 1790 to 1800.—Given by Major-General G. G. A. Egerton, C.B.
- (7800) An original Water-Colour painting by Colonel Clinton Baddeley of "The attack on the Yang-tse-Kiang Forts in 1861."—Given by St. Clair Baddeley, Esq., J.P.
- (7801) Nine (Military) Horse-bits, with various brass bosses, some of ancient date. Five (Driving) Horse-bits with curious bars. Two (Plain Riding) Horse-bits of ancient date.—Given by The Crown Equerry, Royal Mews, Buckingham Palace.
- (7802) Two (brass) Military Stirrup Irons. Pair of patent safety Stirrup Irons.—Given by The Crown Equerry, Royal Mews, Buckingham Palace.
- (7803) Model of a Frigate, *circa* 1712–1720, which has been recently built, from keel to truck, and rigged by the donor from contemporary drawings, referring to a 32-gun Frigate of that date.
 She corresponds to the class of Fifth-rate ships which appear in the *Navy List* of 1720, viz. the "Lyne," "Winchester," "Rye," "Poole," and "Mermaid," whose dimensions were:—length of gun deck, 126 ft.; extreme breadth, 35 ft.; depth of hold, 12 ft. 2 in.; tonnage, 687; armament, twenty-six 18-pounders, six 8-pounders; complement, 210 men; dimensions of the model, 39 in. by 10 $\frac{1}{8}$ in.—Given by Arthur W. Nye, Esq.
- (7804) Shield and rattle of a Boxer warrior, taken during the campaign of 1900. Given by General Sir E. G. Barrow, G.C.B., G.C.S.I.
- (7805) Full dress uniform of the Seaforth Highlanders worn by H.R.H. the late Duke of Albany as Colonel-in-Chief of the Regiment, viz.: Doublet, Kilt, Dress Sporran, Dirk and Belt, Bonnet, Sash, Spats and Shoes, Hose and Garters, Plaid and Brooch, and Glengarry Cap and Badge.—Given by H.R.H. Princess Alice, Countess of Athlone.
- (7806) Mess Jacket and Waistcoat of the Seaforth Highlanders, worn by H.R.H. the late Duke of Albany as Colonel-in-Chief of the Regiment. Given by H.R.H. Princess Alice, Countess of Athlone.

(7807-7809) The following Swords given by Captain H. N. Jackson, viz. :

(1) Highland Claymore *circa* 1760. (2) Heavy Dragoon Sword, British *circa* 1740. (3) Infantry Officer's Sword *circa* 1780, the blade engraved with the figure of an Infantry Officer in the uniform of the period, gilt mounted and with knot. (4) Curved Infantry Sword *circa* 1780, the blade engraved and inlaid with gilt with the design of an Officer of Grenadiers, trophies of arms, etc., gilt mounted and sword knot. (5) Naval Officer's Hanger *circa* 1740, the blade engraved with the design of a Ship of War of the period and trophies of arms. (6) Infantry Officer's Sword *circa* 1800, bore grip, gilt mounts, on the blade is engraved the Royal Cypher of G. R. III. (7) French Cavalry Sword *circa* 1740, the blade inscribed "Dragons d'Aubignie." (8) French Cavalry Sword, the blade inscribed "77^{me} Régiment des Chasseurs à Cheval, 1673" and "Bonaparte, premier Consul de la République française, 30 thermidor, an 10."

(7810) Flintlock Pistol, the barrel marked "1793 K.D. Guards."—Given by Captain H. N. Jackson.

(7811) Officer's round Forage Cap of the Oxfordshire Light Infantry *circa* 1890.—Given by Captain H. N. Jackson.

(7812) Kookri Knife with carved ivory handle, with its two accessories, presented by the Maharajah Jung Bahadur, Prime Minister of Nepaul, to Sir John Login, who was afterwards Governor to the Maharajah Dhuleep Singh.—Given by R. K. Hodgson, Esq.

(7813) A small Indian Matchlock Musket inlaid with gold, picked up on the battle-field of Chillianwallah (January 4th, 1849) and presented to Sir John Login.—Given by R. K. Hodgson, Esq.

(7814) A rifle cartridge and fragment of shell which were picked up by Her Majesty The Queen on July 9th, 1917, between Albert and Pozières.—Given by Her Majesty The Queen.

(7815) Piece of iron from the French vessel "Mont Blanc" which blew up in Halifax Harbour on December 6th, 1917. It was picked up by Mr. Marcus Chambers in the garden of the residence of Admiral Chambers (his father) about 3 miles from the scene of the explosion.

The 3,000 tons of T.N.T. wrecked Halifax and was probably the largest explosion on record. (*See also* Exhibit No. 3617).—Given by M. M. B. Chambers, Esq.

(7816) The original Victoria Cross struck for submission to and approval of Her Majesty Queen Victoria on its institution in February, 1856. It came into the possession of the donor from his Grandfather, who founded the firm which made and still make the Decoration.—Given by Lieut.-Colonel M. P. Hancock, D.S.O., Royal Fusiliers.

XIV.—The British Empire Exhibition.

The Council have loaned to the Army Council fifty representative Exhibits from the Museum to be included in the War Office Section, which is being devoted to the History of the British Army and the part which the Army has played in the building of the Empire, in this great undertaking.

XV.—Taxation.

The Council have great pleasure in announcing that the Institution has now been exempted from the payment of Income Tax of every description; and at a recent meeting congratulated the Secretary on the result of his activities in the matter for several years past.



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[Authors alone are responsible for the contents of their respective Papers. All communications (except those for perusal by the Editor only) should be addressed to the Secretary, Royal United Service Institution.]

AIR STRATEGY.

By WING COMMANDER C. H. K. EDMONDS, D.S.O., O.B.E

On Wednesday, 12th December, 1923, at 3 p.m.

COLONEL THE RT. HON. LORD GORELL, C.B.E., M.C., M.A.,
in the Chair.

THE CHAIRMAN : Ladies and Gentlemen, it is my pleasant duty this afternoon to preside at this lecture. It strikes me as being one on a subject of national Imperial defence to which too much importance cannot possibly be given, and we shall listen with the deepest interest to what the lecturer has to tell us. It is perhaps hardly necessary to say much by way of introduction of him. After a distinguished career on the naval side, he is now an instructor at the R.A.F. Staff College, and is eminently qualified to deal with this vital subject—never more vital than now.

LECTURE.

MY LORD, Ladies, and Gentlemen : When the Councils of the Royal United Service Institution and the Royal Aeronautical Society did me the honour of asking me to give a lecture on "Air Strategy," I was a good deal puzzled as to how to tackle the subject. I thought it necessary

to try and approach the subject in a way which will, I hope, prove equally interesting to everybody here.

But the finding of a common avenue of approach was rather difficult, because the audience who have been kind enough to come and listen to me are—if I may say so—mixed. Perhaps I may be allowed to classify the members of the Royal Aeronautical Society as “men of thought” and the members of the Royal United Service Institution as “men of action”; and what might interest the one might not interest the other.

Moreover, I am very conscious that there are here officers who have been studying and practising strategy a great deal longer than I have. So it would be very tedious for them if I merely ran through how we apply such strategical principles as “mobility,” “concentration,” “security of lines of communication,” etc., etc. to air-warfare. And also the history of air-warfare has been so short, that I am not at all sure that we are quite certain yet how we ought to apply all these principles.

So it seemed to me necessary to depart from the rather stereotyped lines of strategy lectures, and to find a common avenue of approach to the subject of “Air Strategy”—and I thought of two such avenues. First, we are all of us imperialists, and so we wish to see the empire defended as securely as possible. Second, we are all taxpayers, so we want the defence to be as economical as possible; we don’t want to pay for an air force unless air-power does seriously affect the strategical problems of this empire.

Therefore I propose to try and review the strategical problems of this empire, as we see them and foresee them from the seat of an aeroplane. I will try and depict the panorama of the defence of this empire as it appears from the air. In so doing I will try and explain the effect of air-power on the various bits of this panorama. And as we go along I will try and explain what the air-strategist has to think about in dealing with these problems; and also how it would seem that we ought to apply in the air those principles of strategy to which I have already referred, and which history has proved to be correct for sea and land fighting. But before I go on I want to emphasise that what I am going to say is merely my own personal opinion, and is not necessarily the opinion of the air staff.

Small wars.—Now imagine ourselves up in an aeroplane with a panorama of the empire spread out before us. Which of the numerous problems presented by the need for its defence shall we consider first? Let us take what is known as a small war; because it is the type of war which is most frequent at present, and because it brings out certain principles of air-action.

Assume, in any semi-civilised part of the empire, the frequent case of a tribe which for some cause or other will not recognise our authority, and so we have got to persuade them to do so.

Assume that this tribe lives within flying distance of an air force garrison. Now, how does the job of bringing that tribe back to allegiance appear from the air?

We notice first a characteristic of air-strategy with regard to small wars,—that is, that the use of air-power very often prevents a war. This ability to prevent small wars is quite the most important characteristic of air-power in affairs of this kind, and so I will explain how it comes about.

We have assumed that this tribe has, in some way or another, repudiated our authority. Well, there have been many cases where mere demonstration flights over the tribal headquarters have sufficed to bring them to reason, and the despatch of such demonstration flights would probably be the first step that the local air-strategist would take. However, let us assume that these demonstrations do not suffice; are we now committed to a small war? By no means; the next step is probably the conveyance of the local political officer to the tribal headquarters, to reason with the leaders, whilst aeroplanes circle overhead as a definite proof of the white man's power. And even if this fails, or if it is unsafe for the political officer to visit the tribe, there remains the alternative of dropping leaflets from the air, which is often successful. (I know that I am rather digressing into tactics now, but I must do this to make my meaning clear.)

These are all reasons why air-power often prevents these small wars. But there is one more reason, probably the most cogent, which brings us to the basic factor of why the tribesman fights. Why does he fight? Partly because he is so poor that he wants loot; and partly because he enjoys a fight—provided that he has the odds on his side. Suppose, however, that the tribesman knows that if he fights he has got to fight aeroplanes; will his two incentives, loot and a good scrap, be present? Obviously they will not. Gone is the alluring prospect of a raid on the line of communications of the old-time punitive column, which, if successful, provides the tribesman with the boots, rifles, ammunition, etc. which he so desires. And what of the fight with the odds on his side? It has gone too; and it is replaced by the wholly unattractive prospect of shooting away valuable ammunition (which may cost an appreciable sum of money per round) at an aeroplane which—fortunately—is seldom brought down. The deterrent effect of this prospect of wasting expensive ammunition is sometimes strong. Perhaps the analogy of golf is a good one. Most of us are content to play golf—and to pay about half-a-crown for each ball—if we know that the ball will last two or three rounds, and that every time we hit it there is (according to our handicap) a more or less reasonable chance of it going somewhere down the fairway. But if we had to pay half-a-crown every time we hit the ball, and then there was practically no chance of it going down the fairway, I don't think golf would be so popular—and I am certain that it would never have originated in Scotland. In short, we believe that 90 per cent. of the effect of air power regarding small wars is that it prevents these wars.

But of course there are cases when the peaceful methods I have described fail, and force becomes necessary. How does the job of dealing with the tribe then appear from the air?

We notice now another characteristic of air-strategy. Here are we, in the air, going to fight an enemy on the ground. I don't think land or sea strategy supplies analogies to this, because navies generally fight navies, and armies generally fight armies. But in the air we may have to fight people on the ground as in this case; or, as I shall try and depict, people in the air or at sea. That seems a characteristic of air-strategy, it must be ubiquitous—we may have to go anywhere and fight anybody.

We next notice that it may be very difficult, by bombing and machine-gunning, to do the enemy any harm. Perhaps he lives in scattered huts which, if destroyed, are easily rebuilt; if his prosperity lies in flocks or herds, he will learn to disperse them when aircraft are about; and he very likely lives in rugged country which facilitates his concealing and protecting himself. Clearly, then, it is going to be difficult for the aircraft to do material damage; and this brings us to the basic principle of air attack against ground enemies, viz., it is their *morale* which is attacked. In this case they will learn to clear out of their huts when the aircraft come, they will disperse their flocks by day and water them by night. But such a life will be far from normal—constantly hiding and sheltering—and gradually the inconvenience and indignity of it, combined with the fact that the aeroplanes offer little compensation in the form of loot or a fight with the odds on their side, will make life unbearable. In the end, the tribe submits, because of the damage to its *morale*. About the only thing the air-strategist has to consider in a simple case like this is, how long he must be prepared to go on bombing. In other respects he is—strategically—care free; no need to worry about his base, it is out of harm's way; there is no long and vulnerable line of communications to lure the hostile tribesman and cause the commander anxiety—some of the difficulties of the punitive column have disappeared. The air commander has merely got to ensure that his resources can outlast the tribe's *morale*. Some people will have higher *morale* than others; but all, whether civilised or savage, are believed to pass through three phases when they are continuously bombed. The first is considerable fear, possibly panic. The second is indifference, when the smallness of the material damage is realised. The third is weariness, as normal life becomes more and more impossible. It would appear that the air commander merely has to consider the ways and means of getting the enemy into this third stage. That is perhaps an air application of the principle of "maintenance of the objective."

But very often small wars are not so simple as this. The actual tribe offending may not be the real offender. In all probability the latter is some disgruntled chief or subsidised agitator who slips over the border, deflects the tribal leaders from their allegiance to us, or even prepares plans for a definite attack. In this case it may be necessary to send a column of troops to the disaffected area. In fact, just as tanks often want infantry to exploit their success, so in small wars aircraft will often need to work in co-operation with columns on the ground.

Now consider the power of the air in such cases as these. During the time which must necessarily be taken by the ground column to reach

the disturbed area there is no delay, but the aeroplanes continuously bomb hostile villages or those which harbour the agitators. The result probably is that hostile tribes are too harassed to complete defensive arrangements against the column; and other tribes which would become hostile if the rebellious tribes had any success, remain watchfully neutral. So that the armed resistance which the ground-column eventually meets is reduced to a minimum. The value of the air force when once this column starts fighting is to reduce many of the latter's difficulties. Reconnaissance will reveal impending flank-attacks, it may reveal strong points and possibly the enemy may be bombed out of them, communication with the base and between commanders of columns becomes easy.

To sum up, the effect of air-power on the strategical problem of small wars is mainly that it prevents them—I have said that I believed that 90 per cent. of the effect of the air was preventive. If, however, the preventive effect is insufficient and war takes place in spite of it, then I think the effect of air-power is to render these small wars less dangerous, less costly, and more localised.

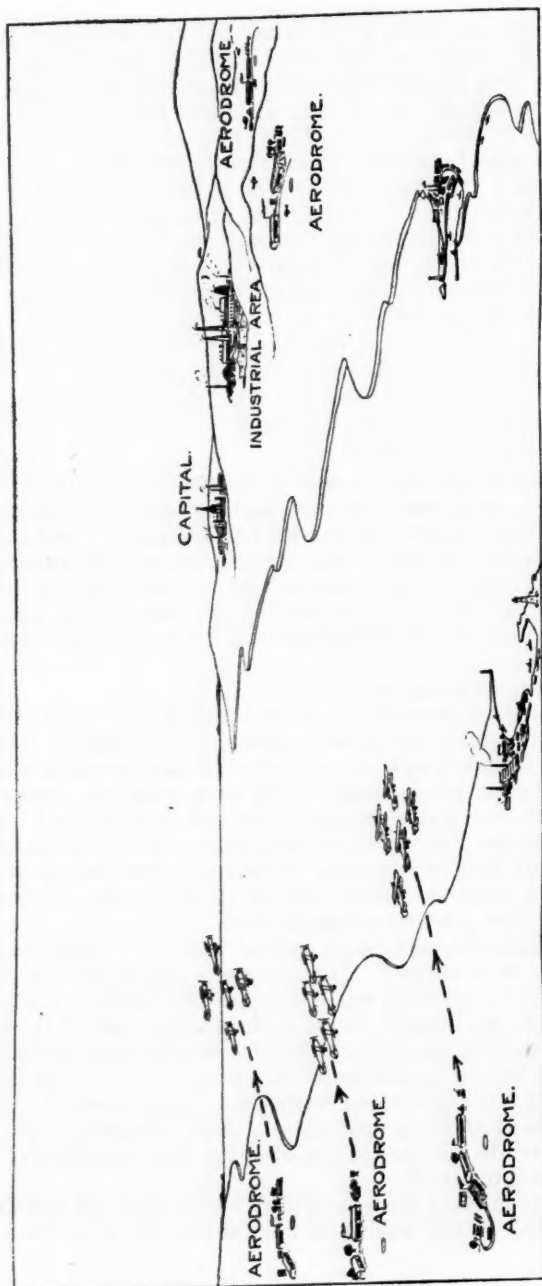
Continental wars won primarily by air-action.—Now let us turn to big wars: I mean wars between highly-organised, modern, industrial nations. We will assume a war with two belligerents, each with a navy, an army, and an air force; and we will assume the two countries are within flying range of each other, and let us further assume that our main national efforts are to be directed towards winning the war in the air, and that we are the air-strategists—the air staff—who have to conduct this great war.

How are we going to do it?

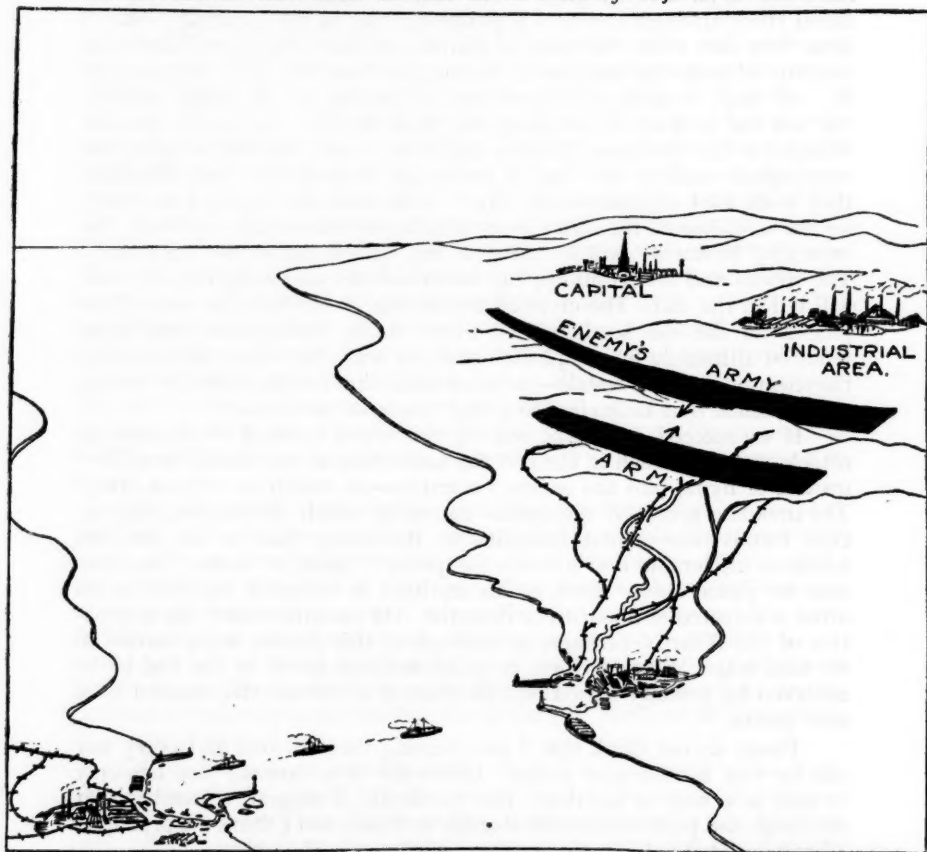
The question immediately arises: will it ever be possible, by air-attack, so to affect the enemy's national life, that we win the war? Personally, I think it will. But as I don't flatter myself that my personal opinion will carry much weight, I will quote what the greatest master of modern war—marshal Foch—said on this very subject. Foch said: "The potentials of aircraft-attack on a large scale are almost incalculable; but it is clear that such attack, owing to its crushing moral effect on a nation, may impress public opinion to the point of disarming the government and thus becoming decisive."

I would ask you particularly to note the phrase "owing to its crushing moral effect on a nation." That phrase is significant; it gives us our clue. Just as in the small war our continuous bombing made the tribe's life intolerable and brought him to heel, so in the case of the big war our object is to destroy the enemy's national *morale*—we must make him feel that life has become so impossible that he prefers to accept peace on our terms. That is our object—to destroy the enemy's *morale*. Our air force is the means of attaining that object. Now, imagining that we are the air-strategists, the air staff, let us consider what the objectives are which our air force is to attack.

Probably in every modern civilised nation there are certain organisations essential to the waging of war; if the war is to be carried on,



they must carry on also. As examples of these organisations I suggest arsenals, railway centres, factories for clothing or boots for the troops, perhaps certain transportation systems. All these are military objectives, and if we bomb them on a really big scale the enemy will find it very difficult to go on with the war. His difficulties will not, however, end there—in fact they will only just begin—his real trouble will be that these air-attacks on military objectives will auto-



matically affect the *morale* and life of the nation; and I would like to examine the reason for this.

Probably every modern industrial nation has its vitals; one may be chiefly dependent on overseas trade coming to its docks, another on the production of certain mining areas, another on the output of industrial districts; for all, it is essential that their transportation systems can flow more or less normally; and "business" must be "as usual" in the big

cities. Now it so happens that the essential war-organisations—I mean the arsenals, railway centres, and other military objectives to which I have already referred—are generally situated in or alongside one of these “vital” areas. For instance there is Woolwich arsenal, practically in the centre of the port of London. And what I am getting at is this, that if these objectives—which are situated amongst the nation’s vitals—are bombed on a really great scale, there is bound to be a very great moral effect amongst the civil population living in the adjacent “vital” area. Not only raids, but air-raid alarms and false alarms, will force the majority of people to take cover. During the time they take cover normal life will stop; nobody will count out the money in the banks, nobody will sell the food at the markets, the food for next day won’t get distributed to the provinces, nobody will bring round the milk or print the newspapers—and so on. And if people get their night’s rest disturbed they won’t work efficiently next day. I am sure that it is not necessary for me to elaborate the idea; if our attacks are on a really big scale, the enemy’s “business” will stagnate, at any rate it cannot be “as usual.” The shocks and interruptions, the inconvenience and indignity of it all, will tell in the end. The civilised nation will go through the same three phases as did the semi-civilised tribe: alarm, indifference, weariness; followed ultimately by compliance with our will. Our object is to destroy the enemy’s national *morale*—we must make him feel that life has become so impossible that he prefers to accept peace on our terms.

If we succeed in waging war by this novel method of primary air attack, we shall reach in the end the same state as we should reach if—instead of flying into the enemy’s country—we march in with an army. The invading army—if successful—causes so much destruction, dislocation, inconvenience, and indignity to its enemy that in the end life becomes intolerable and he sues for peace. Often, of course, the loser sues for peace before much of his territory is occupied, as soon as his army is defeated or about to be defeated. On the other hand, the occupation of the Ruhr is, perhaps, an example of this process being carried to its final stage. So that there is really nothing novel in the end to be achieved by primary action on this scale, it is the old end reached by a new means.

Please do not think that I am claiming that all wars and every war can be won by this new means. Obviously they cannot; one has only to look at a map to see that. But we should, I suggest, remember that the range and power of aircraft steadily increase, and I think the principles I have outlined will remain the same whatever is the range.

Now I would like to suggest that, assuming that the enemy present us with suitable objectives for air-attack, this new strategy has certain advantages, as follows: Generally speaking a flank-attack is cheaper than a frontal-attack, and flying over the top of our enemy is a sort of a flank-attack—if we think in three dimensions, which we ought to do, now that we move in three dimensions. Again, in the late war, speaking very broadly, armies were engaged in endeavours to “break-through”

their opponent and get at his vitals. It was very slow and very costly, and I am told that the problem of how to "break-through" is still unsolved—I suggest not a solution but an alternative: don't break through, go round the third flank—by the air.

Further, if this is practicable it has the great advantage that it simplifies the problems which are connected with lines of communications. I tried to show how, in a small war, it seems to be an advantage to wage it by air if we can, because we do away altogether with the necessity for the long, vulnerable and expensive line of communications. Does not the same apply in a big war? We all know what happened in the case of the great armies of 1914-18. To keep them going they needed behind them transportation systems of railways, roads, motor-cars and barges, on such a scale that the maintenance of these systems was a tax on the resources of the home country. That was serious; the line of communication was expensive, uneconomical. But in a future war, when air power will be more developed, it will be more serious still; because these essential lines of communications will be so very vulnerable to air attack—just as in the small war the line of communication of the punitive column was so liable to be attacked by the hostile tribesmen. Of course there is nothing new in all this. Much is being done on the problem of simplifying the line of communication. Again I would suggest not a solution but an alternative: whenever possible, don't march to the enemy's 'vitals' at 5, 10, 15, 20 or even 30 miles an hour, trailing an expensive and vulnerable line of communication behind—go there at 100 miles an hour without a line of communication at all.

That all sounds very simple. But we have done what we couldn't possibly do in practice: we have neglected to deal with the enemy's air force. We are imagining that we are the air-strategists—the air staff; the government have told us that they intend to make the biggest national effort in the air, that is mainly where the war is to be won; we have decided, for the sake of argument, that we can do this by striking by air at the enemy's essential organisations; but we have also got to deal with his air force. What are we going to do about it? Shall we go for his essential organisations and neglect his air force? Shall we do the reverse or compromise?

I don't think there is much doubt that if the air force alone is to be considered, our correct strategy is to go for the enemy's first and knock it out; then, when the air is clear, we can do more or less what we like. But the air force is merely the means of enforcing our national will, so it must be used in the manner which will best serve that end. Now, is it possible to serve that end—to enforce our will on the enemy—if we leave his air force free to act?

I would suggest that sometimes this will be possible. For instance: suppose that, although we have decided to try and win this war by air-action, the enemy is going to try and win by sending an army to invade us. In that case it might possibly be wise to concentrate our air-attacks

at first against his mobilisation and embarkation centres. The first objective for the air force, I suggest, will depend on circumstances—and very largely on the question of whose air force is ready first.

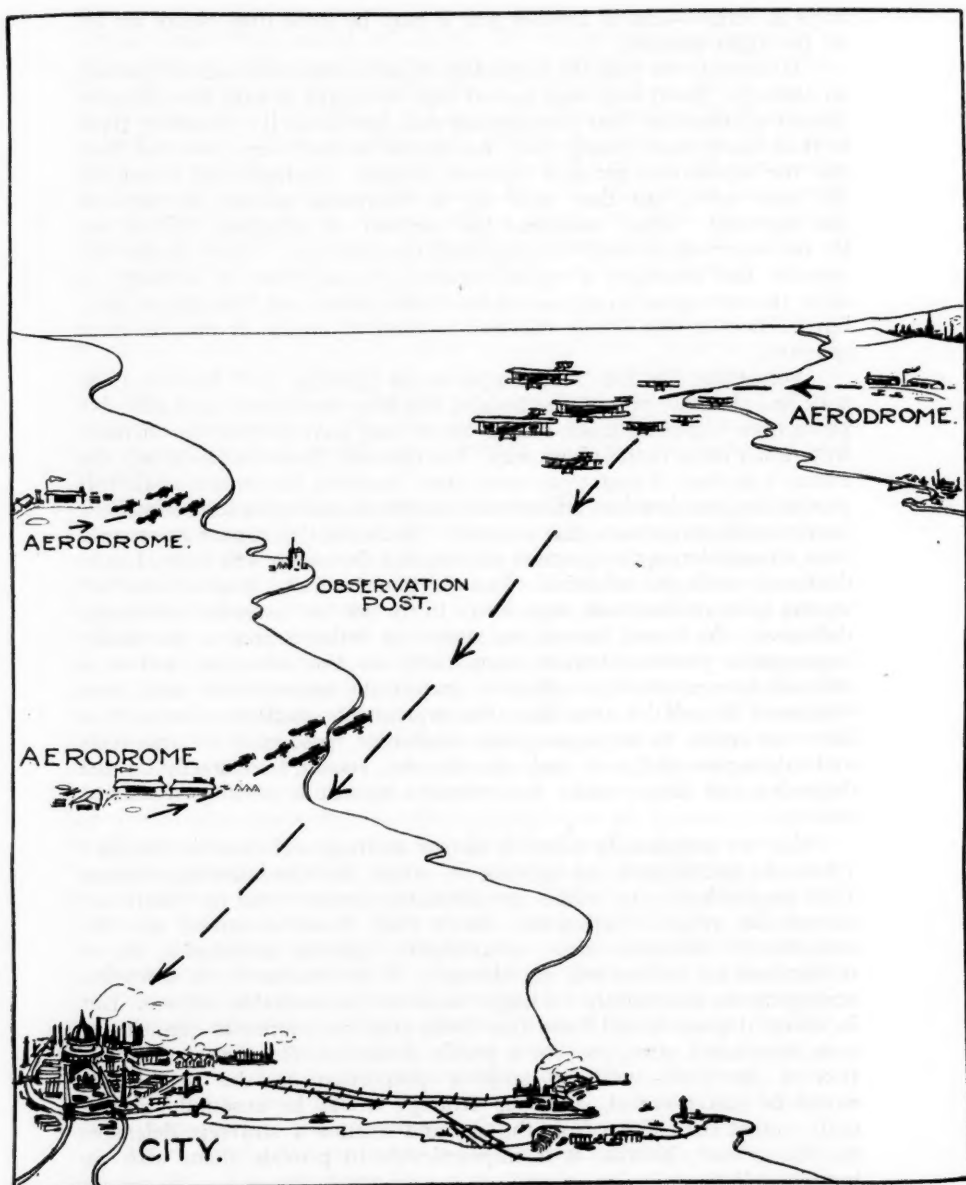
But, sooner or later, and probably it will be sooner rather than later, we shall have to do what the navy and the army do, destroy the enemy's fighting force, in our case his air force. How are we going to do it? In the past and at present it was clear enough; though possibly in future it may not be so simple. However, let us consider now the past and the present, and come to the future later. An enemy's air force can be dealt with either by attacking his aerodromes or by offensive fighting patrols. It was only towards the end of the war that bombing became really serious, so we did not take any really adequate steps to minimise the effect of bombing. Hangars were constructed of light and inflammable material, they were often huddled together, several units were often accommodated on the same aerodrome, etc. So that if you bombed an aerodrome you had a good chance of doing damage. As regards offensive patrols, they worked over or near "the line"; this was a comparatively small area, with many machines over it, so if patrols went out looking for trouble, they probably found it.

But I don't believe things will be quite so simple in future. Aerodromes will be laid out more carefully. Hangars at permanent stations will surely be made of something substantial like reinforced concrete; and they are hardly likely to be all huddled together as are most of our air stations—and indeed most naval and military establishments to-day. So that if one's enemy is wise, bombing aerodromes may be rather a farce.

Again, offensive patrols may not be so certain of results. If we imagine an eight-hour offensive patrol sent out to the middle of Europe, since the air is such a big place it is quite easy to visualise this patrol going out and coming home having had an absolutely blank day.

The probability that an air force will prove to be a difficult thing to attack, and that if it is attacked and defeated it can grow up again reasonably quickly—provided that the facilities for training and production are intact—lead one to think that air-superiority will be difficult to obtain and of temporary duration. Attacking an air force is somewhat different to attacking an army; the latter is a more definite objective, and it probably takes longer to produce another army. Even more different is the attack of a navy; if a fleet is defeated it is sunk, and finished with, probably for a generation at least. These are reasons why we should not follow the precedents of sea and land fighting too closely, when considering this most difficult question of the proper objective for the air force.

Therefore, although there doesn't seem any doubt that the right strategy will be for our air force to knock out the enemy's as soon as possible, and although it seems more or less clear how to do this at present, I think we may find that we have to go about it in other



ways in future—and in another war it may be some time before we hit on the right method.

It seems to me that the beginnings of anti-submarine warfare provide an analogy. Everybody was agreed that we ought to take the offensive against submarines. But the question was, how to do it? Bombing them in their bases wasn't much good, for aircraft weren't very powerful then, and the submarines got into concrete shelters. Barrages and minefields did some good, but they used up an enormous amount of our men and material. There remained the method of attacking submarines by the escort-ships which accompanied the convoys. Theoretically this appears bad strategy; it appears rather a weak form of strategy to allow the submarine to get out on the trade routes and then attack him; but I believe it was a very effective method of attack, if not the most effective.

Something like that may happen in air fighting. As I have said, we may find that the present methods of bombing aerodromes and offensive patrols don't produce much result. So we may have to take the offensive by a rather more round-about way. For instance, if we want to attack the enemy's air force it might pay us to start bombing his centres of aircraft production; our bombers will attract his fighters, and so we shall ensure the contact with his air force that we want. However, that is pure guesswork. Now, in considering the question of defeating the enemy's air force, I have dealt only with the offensive. The question naturally arises of whether we can gain, or maintain, superiority in the air by assuming a strategic defensive. As is well known, an army can retire behind a practically impregnable position, remain temporarily on the defensive, and at a selected time resume the offensive against the enemy—who may have weakened himself by attacking this impregnable position. Similarly, a fleet can retire to an impregnable anchorage, protected by minefields and submarines and nets and aircraft, etc., remain temporarily on the defensive, and then resume the offensive against a possibly weakened enemy.

Can we successfully adopt a similar strategic defensive in the air? I have no hesitation in saying that we cannot for the following reasons. It is impracticable to make an absolutely secure base to which our aircraft can retire. Experience shows that, however strong are the anti-aircraft defences—guns, searchlights, fighting aeroplanes, etc.—determined air raiders will get through. If we increased our defensive arrangements enormously we might make an impenetrable defence. But in doing this we would have tied down such an enormous quantity of men, aeroplanes, guns, etc., to a purely defensive rôle, that the disposition of our force—with so great a proportion on the defensive—would be uneconomical, and our strategy would be unsound. So aircraft cannot come down from the sky and assume a strategic defensive on the ground, because it is impracticable to provide them with an impregnable base.

Can we successfully assume a strategic defensive in the air? That is

to say, are we likely to succeed by only fighting when we are attacked? This has been tried, and it has failed. The reasons are fundamental: in air fighting, we make use of our mobility to get surprise and concentration. But if the enemy has the initiative, as he will have if we always wait to be attacked, then obviously it will be impossible to make full use of our mobility. And further, it will be very difficult for us to avoid being surprised if we remain on the defensive; because the enemy will advance to attack us, not along more or less known lines of attack as on land, or in two dimensions as in the case of surface ships, but from any angle or direction in three dimensions. And other reasons, such as the effect of the defensive on *morale*, apply as strongly, or more strongly, to air fighting as to sea or land fighting.

Therefore, to summarise the question of dealing with the enemy's air force—I suggest it is quite right to assume that when we fight an enemy who is strong in the air, our correct strategical objective will generally be his air force; further, it is certain that only by adopting the offensive can we win; but I think it is also wise to remember that we may have to modify the methods by which we carry out the offensive.

Home defence against air attack.—Now so far, in considering this war which we are trying to win primarily by air-action, we have assumed that we start with the initiative, that we are ready first, and we launch the attack. But as this empire only fights in self-defence, the boot is much more likely to be on the other foot; so we must think what we are going to do if the enemy starts off by attacking us. Any country liable to be attacked by air, must do what we are going to do in this country—organise an air force for home defence; and I think it will be appropriate to review the strategical questions which arise out of this. Everybody knows the old saying that the best defence is a vigorous offensive, so it follows that a part of our air defence force must be capable of going over and attacking the enemy in his own country. That is one of the things the air-strategist has to decide—what proportion of his defence force is to be offensive and what proportion is to be defensive, *i.e.*, fighters, to tackle the enemy when they come to us. When that has been decided he has got to arrange the means by which these fighters are warned of the approach of the raiders; in the past this has been mainly by telephone from outlying observation and listening posts. Then there is the question of where to locate the aerodromes of these defensive fighter squadrons: they must not be too far forward, otherwise the arrival of the raiders overhead will follow so quickly on the reception of the warning, that the fighters will not have time to get up to intercept them. On the other hand we must not site these aerodromes too far back, as the enemy must not be allowed to come further into our country than is absolutely necessary. There are also the questions of the guns and searchlights.

That is, briefly, the outline of this air-defence problem as we see it, from the air. You will agree that it is complicated, and needs careful working out.

Continental wars in which all three services are used in common.—

I have now tried to depict a small war, and a continental war in which we are to win primarily by air-action, as they appear from the air. Now let us go on to look at another type of "continental war," that is to say one in which the government has decided—or geographical or other conditions have dictated—that the navy, the army and the air force are all to be used in common. May I say again, that I am not claiming that every war can be won by the air alone? So these wars where all the services make common efforts are probably the most important. Now let us see what this sort of war looks like from the air; and, assuming that we are still the air staff, let us examine the problems we are up against.

Presumably in this war the navy's job will be to destroy the enemy's fleet; at the worst it will contain it, as the grand fleet contained the high sea fleet. In addition it will probably carry out other operations, such as a blockade; or attacking enemy commerce, and the protection of our own. Now what can the air force, apart from the units which are actually co-operating with the navy and are under the Admiralty's orders, do to assist the navy? With due deference to the opinion expressed by Sir Percy Scott's midshipman as to the value of a battleship, I don't think the air force will be able to go out and sink the enemy's battle-fleet. Possibly, if he persisted in remaining in harbour we might bomb him out, but when he is out I think it will be our fleet that will deal with him.

What our air force has got to do, then, is to try and clear the air over the area where the naval operations will take place. Then our navy will fight with all the advantage of having air superiority on its side. It will enjoy the advantages of plenty of air-reconnaissance, aircraft-spotting, torpedo-planes, etc.; and these will be denied to the enemy. In addition, aircraft will be able to assist more or less unmolested in the blockade, submarine-hunting, attack of commerce, etc. But to get his air superiority we have got to knock out the enemy's air force. So it seems that the first phase of this war—in which navy, army and air force are engaged—is, so far as helping the navy is concerned, a battle in the air.

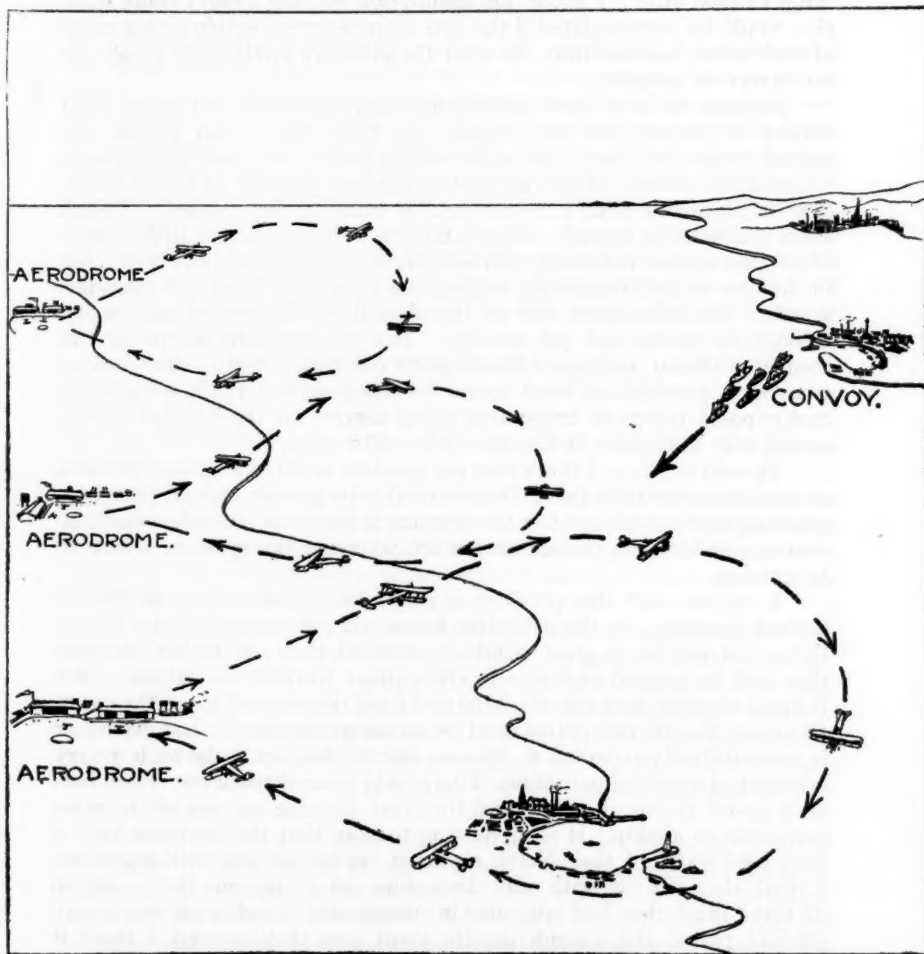
Now what are our problems in connection with the army? We will assume that, as soon as the navy has secured superiority at sea, the army will be transported overseas and landed as an expeditionary force. We have already seen that to help the navy to get superiority at sea the air force must get superiority in the air. Further, we have also got to get it to enable this expeditionary force to land, because everybody agrees that it could not be disembarked in the face of a powerful hostile air force.

Therefore, as far as we can foresee, in this imaginary war—where we are using our navy, army and air force equally, the air force has the same objective as when it fought the war by itself—*i.e.*, to attack the enemy's air force and become superior in the air.

Then, when this superiority has been established, the air force will be used to lessen the enemy's resistance—by continuous bombing, etc.

By this means the task of the army will be rendered easier to achieve and less costly. In fact the air force will help the army in the same way as it does in a small war, only on a bigger scale.

But let us go on considering this war, where the navy, the army and the air force are all making common efforts. So far we have rather



assumed that we are lucky and had the initiative; we are considering what we proposed to do. Now I would like to assume that the enemy has the initiative, so that instead of our sending an expeditionary force against him, we will imagine that he proposes to send an army overseas to invade us.

Defence against invasion.—Imagine ourselves in an aeroplane, flying along the coast line against which the enemy proposes to send his invasion. How does the problem of defending this coast appear to us? What can we do to stop him? I think we must now assume that the two countries are rather more separated, so that they are not within flying range of each other. I make this assumption because I don't think invasion would be contemplated if the two countries were within flying range of each other, because from the start the invaders would have absolutely no chance of surprise.

Suppose we have some air-stations along this coast; let us see what defensive measures we can arrange, and their effect. Our patrols will extend seaward to 200 or 300 miles—much more if we have airships—so we shall be warned of the impending landing perhaps 24 hours before it takes place (assuming a 10 knot convoy bringing the invaders). I think there is agreement nowadays that a landing in force has very little chance of success against defenders who are prepared; surprise is essential; but in the case we are considering surprise has gone; so I think our coast-line is safe. The subsequent *role* of the aircraft as the convoy approaches belongs to tactics and not strategy. But to complete the picture as seen from the air, perhaps I should point out that a fleet of slow-moving transports provides an ideal target for bombers or torpedo-aeroplanes; and exposed troops in transports, going ashore, on the beaches ashore, are all very vulnerable to the air—as is well known.

To sum up, then, I think that the problem of defence against invasion as seen from the air is this: the essential is to provide enough patrols to guard against surprise; after the warning is given the defenders can concentrate on land, on the sea, in the air, wherever the attacker is seen to be coming.

I suggest that this provides a very economical method of defence against invasion. As the defending forces will get warning of the attack, they need not be in great numbers provided they are mobile, because they will be warned and able to concentrate to meet the attack. That is much cheaper than our old-fashioned fixed defences all along the coast. Of course the aircraft patrol must be an adequate patrol; but even that is comparatively economical, because aircraft happen to be such a very economical means of patrolling. This is only natural when one remembers their speed, radius of action, and the great distance one can see from an aeroplane or airship. It is interesting to note that the Germans kept a very good watch of their North sea coast during the war with zeppelins; I think they did this with only three ships out at any one time; and to do this I think they had only nine in commission. I believe it was a very efficient patrol, and, considering the great area they covered, I think it was economical.

That I think is all that time allows me to say about this problem of invasion. Geographically it was a small problem; we were only considering distances of a few hundred miles, such as we can cover in a few hours in an aeroplane.

Now in conclusion I will ask you to consider one more problem, and one which is geographically very much bigger. Imagine that we are still up in our aeroplane; only, instead of looking down at just a strip of the coast as we have been doing, let us suppose—owing to some freak of visibility—we can see a panorama of the whole Empire spread around us.

Future defence of the empire.—You will realise that I am talking of the future now, for I have marked on the map air-routes which do not at present exist. The first thing that strikes one is that this empire is not all compact; it is very much scattered, so any outlying portion is liable to be attacked by a powerful neighbour. Now to defend all these component parts of the empire it is obviously impossible to maintain at each vulnerable place a garrison of great strength, for the expense would be altogether prohibitive. So, speaking broadly, what we have done in the past is this. We have kept small garrisons—a few battalions, some small naval squadrons—distributed over our outlying possessions. And we maintain an army centralised at home; and a big fleet at home, or in the Mediterranean, or both.

If one of these outlying possessions was attacked, what happened? If all went well, the small garrison held out until, after several weeks or months—according to the distance away—relief arrived in the shape of the big fleet or army, or both, which were sent out from the central stations.

Usually that worked all right. But obviously the weak link in the chain was that the small garrison might be overwhelmed before the relief arrived. So, to make this chain of defence secure, it seems that we want to try and reduce the time taken in sending out the relief force—and I think this is where aircraft will be able to help.

I would suggest that, in future, the strategical employment of aircraft for the defence of the different parts of the empire should be on the following lines:—We must assume that the air-routes marked on the map exist; they will undoubtedly exist in the future when civil aviation develops, and bits of them exist now. Let us also assume that the majority of our air force is normally kept centralised somewhere, say in Egypt; and that we have, as before, a small garrison—naval, military, air—at each vulnerable point.

Now, if any outlying possession is attacked, what happens? Instead of having to hold on for weeks or months whilst a fleet and an army steam out, the garrison is reinforced by a very strong air force in a few days, and the attack is frustrated. But there is nothing new in this. All we have really done is to apply the older principles of strategy to the air; we have made use of our mobility to get concentration at the decisive point.

And, personally, I believe this would also lead to economy, and if you will allow me I will explain why. First, most of our air force is centralised; it is, therefore, relatively economical, as a centralised organ-

isation always is. Then, these air-routes will be used by commercial aircraft; they will, therefore, pay their own way and cost the state nothing. Again, we ought to be able to centralise the biggest part of our repair organisation; we shall not need the equivalent of dockyards all over the world. But we should, of course, need what I call dumps of stores, spares, supplies of ammunition, etc., to be kept permanently at each vulnerable point; these would be for the immediate use of the relieving air force when it first arrived, later supplies would follow in air-ships, cargo-planes, etc. However these dumps would require very few *personnel* for maintenance, so I think they would be cheap, in so far as any armament can be cheap.

That brings me to the end of what I have to say. It should be taken as being merely the expression of my own views, and not necessarily the official opinion of the air staff. Most of it has been said or has been written before. I am afraid I have produced little that is new. But after all one cannot expect to hear anything very new in a lecture on strategy, because strategy is largely the principles of war, and everybody knows that the principles of war remain the same; it is the method of applying them which changes.

And that I think enables us to sum up the whole problem of air strategy at the moment. What we have got to do is to learn how to apply the old principles in the new sphere, in the air. Personally I think it is difficult, because, although we live in a flying age, it has come upon us so quickly that our habits of mind have not fully changed, and it is hard to appreciate the difference that it can make. For example: in a book which I read the other day—I think it was by Mr. Arnold Bennett—the present age was described as an age of wireless and of dancing. That is quite true, but I don't think it is complete; he ought to have called it an age of wireless, of dancing, and of flying. I mean no disparagement whatever to Mr. Arnold Bennett, but if a clever man like that doesn't realise that it is a flying age, I think it bears out what I said—that our minds are hardly accustomed to the change.

On the same subject, I think it is rather hard to appreciate that if one leaves Northumberland avenue in a car at 8.15 in the morning, one can leave Croydon by air an hour later, lunch in Amsterdam, tea in Hamburg, dine in Berlin. Everybody has probably read in the paper that this service is running, but I believe it is rather hard to appreciate it—that it can be done perfectly regularly right through the summer.

Again, if you stop an educated man in the street and ask him: "How does one get to Japan?" either he gives you in charge or he replies "By going east." But as a matter of fact the right way to Japan is by going north over the arctic; and in a few years isn't that the way we shall go? We shall fly there and save two or three thousand miles by doing it.

To repeat, that seems to be the present problem of air strategy—How to apply the old principles of strategy to the new sphere, the air; and how to make use of the new arm, the air force, in connection with the old problems of empire defence.

DISCUSSION.

VICE-ADMIRAL V. H. G. BERNARD, C.B. : I do not claim to be in any way an authority on strategy, but I look upon strategy as the combining and using of all the military forces at one's disposal. I have been very interested in this lecture. The lecturer suggested that the principle of the flank attack could be carried out by flying over the enemy's army, but it seems to me that he has overlooked the fact that in doing this our aircraft would have the enemy's aircraft to contend with, and in my opinion it would cease to be a flank attack if you found the enemy's aircraft opposing you in your flight over the enemy's army.

Dealing with the question of the great importance of getting your blow in first, I was very much impressed with what the lecturer said on that point. It seems to me that indicates the great importance of keeping up an efficient secret service. In this country the tendency amongst many people in the past has been to regard secret service as something which we should not have anything to do with; but you have to realise that if we are to secure adequately our national safety we must have an efficient secret service. After the lecturer's statement that we are liable to have a blow dealt us quickly and without any warning from the enemy by a big air force, it seems very important that we should proportionately develop our secret service.

THE CHAIRMAN : One of the reasons it seems to me why only one gentleman has risen to carry on the discussion is that the lecturer has covered a very wide field, and in a very moderate way. It struck me as very worthy of comment—not only the things he did say but also the things he did not say. The air force is very young and very enthusiastic, and it has not been perhaps its fault that ever since the war it has really been put upon its defence. We have heard, and it is not for me to deny, that the best method of defence is offence. Therefore I do think that sometimes the air force has suffered from having over-statements made which have given some handles to those who wish to combat it. There was no statement that I call to mind in the whole of the lecturer's address which seemed to me in any way guilty of over-statement, unless we might perhaps except the imaginary picture of going to Japan by the north, but that is only a forecast of a vision. In all the practical part of his paper the lecturer seemed to me to state very fairly the case against primary air action as well as that for it. It was interesting to me to hear again the quotation from marshal Foch. It has played its part in a number of discussions upon the air, and I am not aware that anyone of equal authority has ever attempted to deny that opinion.

The early part of the lecture, especially with reference to the stoppage of transportation services, could I think, if necessary, have been amplified by our recent experience. There have been inquiries as to the actual effect, not only in this but in all the countries that were at war, of the air raids, and some very significant facts came to light as to the dislocation that they caused. It seems to be fairly certain that in any future war which there may be, instead of the raids being at long intervals during which that dislocation may be repaired, they will be very much more frequent, and in some cases they may almost be continuous.

I do not think that vice-admiral Bernard's point about there being no flank in the air is absolutely sound. I think his statement that you would be met by the hostile air force is, of course, certain, but it does leave out of account the immense width and dimensions of the air. The lecturer's statement, that a big patrol might go out for eight hours and find no one, bears upon that point.

I should like to have heard something more, though perhaps it was not strictly part of the lecturer's subject, on the question, upon which he just touched, as to

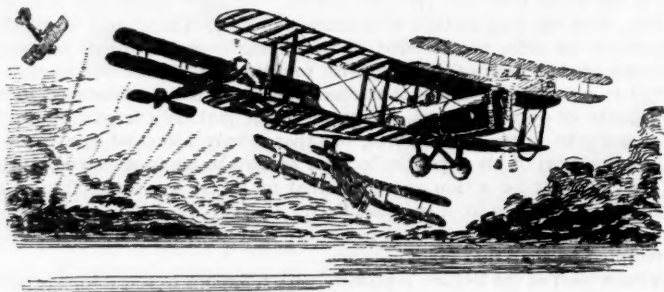
the destruction of a fleet and therefore its not being replaced for a very long time, and the rapidity with which an air force could be replaced. That seemed to me to depend very much upon the basis of power behind the air force in all the factories, in the surplus pilots, and generally speaking in the development of the air sense of the fighting nation. He touched again in his final screen upon that same point which bears perhaps more on civil aviation than on strategy, but his drawing on the board of the air routes that there may be in the future shows how close connection there really must be between the air strength of any power and the way in which it develops the air for commercial means.

I have no other criticism to make upon the lecture, which seemed to me extraordinarily well-balanced and to cover practically the whole field in a very moderate and very skilful way, and I should like to conclude by asking you to pass a hearty vote of thanks to the lecturer for his address.

The vote of thanks was carried by acclamation.

ADMIRAL SIR REGINALD CUSTANCE : You will, I am sure, wish to return thanks to his lordship for kindly coming here to-day to preside, and also for his very valuable remarks, to which we have all listened with great interest.

The meeting then terminated.



THE NAVY, THE AIR, AND THE EMPIRE :

Being a DEBATE between ADMIRAL MARK KERR, C.B., M.V.O., and
CAPTAIN THE RT. HON. VISCOUNT CURZON, M.P.

On Friday, 14th December, 1923, at 3 p.m.

COLONEL THE RT. HON. LORD AMPHILL, G.C.S.I., G.C.I.E.,
in the Chair.

THE CHAIRMAN : My Lords, Ladies and Gentlemen, we are assembled to witness, or rather, I should say, to give ear to, a very sporting contest, namely, a match in dialectics between two well-known and most prominent protagonists on naval questions, Admiral Mark Kerr and Captain Lord Curzon. With the idea prominent in my mind that this in its inception and, I am sure, in the manner in which it will be carried out, is a sporting event, I am strongly inclined to follow the customs of sport, and do my introducing by merely saying : " On my right, Admiral Mark Kerr; on my left, Captain the Viscount Curzon. Seconds out of the ring "; but I am afraid that I shall have to detain you for two or three minutes in order to explain the terms of the contest.

I need not say any more by way of introduction, because the two protagonists are so well known from every point of view. You will remember that this debate between them is the outcome of a challenge from Admiral Mark Kerr, who, after engaging in a controversy in the newspapers, said that he would like to debate this question with Captain Lord Curzon before a competent audience. Captain Lord Curzon gleefully, as became a naval officer, accepted the challenge, and the Royal United Service Institution have taken it under their auspices, for this reason and this reason alone,—that nothing can be more important to this country than a proper understanding of these matters on the part of all those who have to give votes or who have to influence the action of parliament on questions which concern the strength and the efficiency and the duties of the navy. We thought that a debate of this kind, conducted by two great experts, would result in a crystallising of opinions which will be of great value not only to our own members and to all those who read our journal, but also to the public at large. That is why we have taken this debate under our auspices.

The terms of the debate are these. Admiral Mark Kerr, as the challenger, will lead off, and he will move a resolution in order to put into words the object at which he is aiming and the contention he intends to establish. He will have thirty minutes. Lord Curzon will, of course, reply to him, and he also will have thirty minutes. Then, as is usual in debates of this kind, both of them will have the opportunity of a rejoinder. The rejoinders will be made either immediately after the two principal speeches or after any other members of the Institution who have given notice have spoken, if they desire to do so.

What we have to keep steadily in mind is that this is not a lecture and that it

is not a general debate among members of the institution, because we have many here who are not members, but it is a debate between two individuals, and, therefore, the question comes in whether it is expedient or practicable at all to have a vote on the motion at the end of the discussion. I shall have to be guided by what is said, if anything is said, by other persons who take part in the debate. At present the view of my duties which I take is that I should endeavour to decide the match on points by the way in which you have received the remarks of the two speakers, and that I should then submit my judgment as referee to you if I see any signs of dissent.

Now, one more word. One of the conditions on which the council of the institution have accepted this debate is that it should not afford an occasion for any press sensation, and I hope, therefore, that anyone who takes part in the discussion will remember that this is not electioneering, and that he has none of the licence which is accorded either to members of the House of Commons or to learned counsel at the bar. The atmosphere, in fact, the example of manners and the mode of carrying on discussions which, perhaps from personal prejudice, I am inclined to recommend to you, is that which you have so beautifully exemplified in that chamber of the legislature of which by chance I am a member, namely, the House of Lords.

I now call upon Admiral Mark Kerr to open the debate.

ADMIRAL MARK KERR: My Lord, Ladies and Gentlemen, in an empire like ours, communications are as vital to us in peace as in war. No other method of carrying great cargoes at a freight-paying price has been found to supersede the old way in ships on the sea, though mails, money, light valuable freight and a certain number of passengers will be sure of finding air travel a more advantageous means of transport between the different parts of the British Empire all over the world. In times of peace we should knit together our empire by air lines, as every day saved for mails, commercial travellers and carriage of samples is of the greatest value in matters of trading. Some time in the future we will see great trunk lines of airships and aeroplanes, with smaller lines running off on each side of them, running like veins around the world.

A few years ago, when I was in the United States of America, I was asked to be president of a committee for the purpose of looking into the subject of air communication with regard to commercial business between the great cities of the States. It was a very important committee, except for the president. It was composed of an engineer who had been Edison's right-hand man for thirty years; the Vice-Chairman of the American Express Company, who, I think, was the technical officer for big machines in the Royal Air Force, and two prominent business men of the city of New York. It turned out without any possible doubt that the paying of those lines was an absolute certainty, and the money was subscribed five times over, directly it was put on the market. I think that you will see that the meaning of this comes into the discussion later on. There is one thing which pays more than anything else, and that is the carriage of money, because whenever the air can beat the

train and get there before the banks open, a day's interest is saved, and the further the distance, the more the saving.

The British navy exists for the sole purpose of maintaining our communications and stopping those of the enemy in time of war. It has never won a war; but no war can be won without it. Throughout our history, the lines of sea routes have been kept open for our merchant ships by cruisers of varying types, and the mercantile marine of our enemy has been captured or debarred from them by the same means. Great numbers of these fast light vessels are required to carry out these duties, and the producing of a suitable vessel, not too expensive, so that it can be available in great numbers, has been one of the principal problems of our naval constructors. In order that the cruisers could perform their functions properly, the battleship was produced to hold the ring and prevent interference by the enemy's capital ships. In that way we have in old days kept command of communications, or, in other words, the command or the partial command of the sea.

The command of the sea is as essential to us now as it ever was. We must, therefore, investigate to see how it can be maintained in the future, in spite of the modern inventions of submarines, mines, destroyers and aircraft that have come into being, assisted by wireless telegraphy to give speedy information to all parts of the world.

It is a maxim of strategy that it is only to one side's advantage to fight a general engagement, even as it is only to one side's advantage to get out trumps in a game of bridge.

In the old days, before the coming of these pests of the air and sea enumerated above, if one side did not wish to fight a general engagement because it was not advantageous to do so, the battle fleet of the other side would chase it into port and there blockade it, and thus nullify its effectiveness, while preserving its own cruisers from molestation. This is no longer possible since the coming of the flotillas of the under-water, the surface and the sky. This is a most important point, because it does away with the principal function of the battle fleet, to hold the ring so that her cruisers can work in safety.

Let us visualise for a moment the situation in war when one side is getting the worst of the struggle for communications, which, we must remember, is the only reason for the existence of the navy. Will this side send its battle fleet across the ocean to near the enemy's coast, knowing that the enemy's fleet, not wishing for an engagement, will not come out, and knowing at the same time that all those pests that the battle fleet loathes and detests and flies from like the devil, will be attacking them day and night, with loss of material and nerve resulting, while, from constant steaming, the armour belts will shortly be above the water, and the fleet, or what is left of it, will eventually return, discouraged and discredited, to its own ports far across the sea? I have asked several distinguished admirals employed in command during the last war if they would like to undertake such a job, and the only answer I have ever received was an emphatic: "I would not like the job at all."

The problems before us come under two principal headings: (1) What type of ship should the present battleship be so that it can hold the ring under modern conditions? (2) How are we to command the sea communications between our empire and other parts of the world, in face of present day circumstances?

To explain No. 1, from the earliest time, man has striven for three things in order to win in the struggle against the animals and other men,—range, speed and invisibility. In order to lengthen his range, he started by making a stone into a knife. Time passed, and he tied it to a stick and it became a spear. He then threw it as a javelin, and got a range of 50 feet. The bow and arrow naturally followed, and then came the invention of gunpowder and smooth bore guns, then rifled guns and high explosives, until the range at sea was extended to 12 sea miles, and on land up to 70 miles with the big German Berthas; and lastly came the aeroplane to carry the Whitehead torpedo at sea, and bombs and depth charges for land and sea, to a distance of 200 to 300 miles, and in future, to even greater distances.

Man's effort at speed commenced with his legs, on shore, and oars on the water. He then went through sail to steam and to the internal combustion engine, and the last word in speed is an aeroplane that can travel at over 200 miles an hour.

For invisibility, nature clothed the animals in varying garbs to fit in with the backgrounds where they moved and hunted or wished to avoid pursuit. Man, who had taken to clothing himself with alien skins, had, at the beginning of time, to use paint in order to merge himself into his surroundings. Later he took to screens, trenches and trees, in order to conceal himself from his pursuer or quarry, and so he went on improving until he came to use smoke screens on land and sea, submarines under the water, and aircraft in the sky. In all these three things, the air has the final word.

During the war I had a unique opportunity of observing the effect of the flotillas of the air on the flotillas of the under-water. When I commanded the British Adriatic squadron I had an Air wing under me for the purposes of anti-submarine warfare. Inadequate in numbers, excellent in *personnel*, and obsolete in its machines as it was, it was an object lesson in the working of the sea and the air together, for the destruction of the under-water boat. Later, after having been Deputy Chief of the air staff, I commanded the South-West Air Force area, where I looked from the point of view of a General of the air at anti-submarine warfare, carried out by aircraft under my command, working together with the surface craft of the sea; and by the returns which were received, it was shown that there was not a single case of a ship escorted by a heavier-than-air craft being sunk by a submarine, and I believe that there was only one case of a ship escorted by a lighter-than-air craft being sunk. This was of special interest to me, who in 1913 had written in a book called "Flying" that "in the next war one of the principal duties of the seaplane would be in conjunction with the destroyers hunting the

enemy's submarines." I need hardly tell you that I was called a lunatic

The submarine loathes and detests the aircraft. It is the only enemy that can strike it without being struck back at.

The first articles that I published when the war was over, arrived in a great foreign country, although they were not read, except by some of the uninitiated in this. The Minister of the Navy had them reproduced and sent round the Houses of Parliament and the Cabinet. They subsequently voted money to carry out experiments, and they sent me the results of those experiments. I will give you one case. A battle fleet was sent to sea with orders that, if it was attacked by aircraft, it was instantly to break up its battle formation in order to form less of a target. The air scouts found the battle fleet and wirelessly the information in. Shortly afterwards a squadron of aeroplanes flying high, passed over the battle fleet and dropped a smoke screen on the water on either side of it. The battle fleet broke up its formation, but a few seconds later, from either side, a squadron of torpedo-carrying machines flying low and concealed by the smoke screen, commenced the attack, just keeping the trucks of the mastheads of the ships in view over the top of the wall of smoke. They were invisible to the battle fleet. When near, they came down and fired blind through the screen. The result was 41 per cent. of hits. The battleships never saw them, and, in war, undoubtedly they would have passed through them.

Not long ago, a battle fleet was discovered by air scouts in a fog. The tops of the masts and the smoke were visible above the mist. They wirelessly to a seaplane-carrier, who at once got into position and sent her aircraft to attack. They fired eight torpedoes, and seven of them hit.

The defence of the empire should be above party politics or partisanship of the press or people, and in this connection there is a point I want to make clear, as I think it is of great importance. The dice have been a little loaded against people who, like myself, think that we want a little change in type now. For instance, I spoke at the Mansion House, and I said to Lord Birkenhead and the other speakers: "I shall not be reported in *The Times*." I was not. I spoke again elsewhere, and again I was not reported. I wrote a letter to *The Times*, which I had better read to you, on the Singapore base. They said that they had so many letters that they could not publish it. It is very pertinent to this little engagement which we are having to-day, and I think that it puts the matter fairly clearly. I said: "In the debate in the House of Commons, and also in letters to the press by those in favour of building docks at Singapore capable of containing the modern type of battleship of 35,000 tons, they have insisted on pointing out that the battleships about to be built can be protected from submarines and aircraft, but they have not told us what use the present type of battleship is going to be in future wars. I can conceive it possible that our naval constructors could build a ship which would be unsinkable, but if it was useless for offence or defence, it would be a waste of money.

"In former times, if the enemy's battle fleet would not fight, our battle-

fleet neutralised it by blockading it. Everybody now acknowledges that this is impossible, owing to mines, submarines, destroyers and the air. I would, therefore, like to make two or three statements, and ask two or three questions:—

1. It is only to one side's advantage to fight a general engagement.
2. Blockade by battleships is no longer possible.
3. Battleships are quite useless as commerce destroyers, or commerce protectors, on account of their limited radius of action, their size, and their expense.
4. There was no preparation at any bases in the late war to repel an enemy's battleship attack by any other means except mines, submarines and destroyers, because it was well known that these small craft were the reason why no battleships ever approached an enemy's base.

"I should now like to ask the following questions:—

"(a) Allowing that our two new ships will be better protected than the present type, what is it suggested that their function will be in the next war, beyond taking a crowd of small craft, who should be hunting the enemy's submarines, to keep the enemy's submarines from sinking them?

"(b) What harm can the enemy do to our sea communications with the present type of battleship, or what damage can they do to our naval bases?

"(c) Why, then, do we build a type of battleship and a dock to contain it, if the type is obsolete and has no function of offence or defence which it can perform?

"There will always be battleships, but their size, type, and armament will continue to change. A battleship may be a submersible of 5,000 tons, or an aeroplane-carrying ship of 15,000 tons, or some other kind that we have not thought of, of 50,000 tons or 5 tons, but it certainly is not the present type, if it is to be of any use.

"Let us find out what we really want, before spending money in feverish haste on what is of use no longer."

That is the end of the letter.

Our nearest neighbour is already adopting the policy advocated in this paper, so far as increasing flotillas of the air, surface and under-water go, and by not spending more money on capital ships. At the present moment she has 1,000 aeroplanes for attack or defence, as compared with our 75. Last year she built 3,200 and we built 200. Her submarine fleet has increased enormously.

I believe that the present form of battleship should be an aeroplane-carrying ship, with some aircraft carrying 21 inch torpedoes, others with depth charge bombs, smoke bombs, and some fighting machines. There will be in attendance on her, submarines and destroyers when necessary, according to the work and position of the ship. A secondary armament of 6-inch guns will be provided for defence against the submarine and

the destroyer, and the vessel should be fitted with blisters, and well subdivided. It must be remembered that in the last years of the war only one battle fleet put to sea outside the North Sea. After being out two hours, the Austrian fleet returned to harbour with one of their largest ships sunk and another one mortally wounded.

How are we, then, to command the sea in future—that is to say, have the communications in our hands? We have a chain of fuelling stations provided by the foresight of our ancestors all over the world. Each of these can be made a sanctuary and kept inviolate by flotillas and mines. By flotillas I mean the three kinds: of the air, surface and under-water. An island with a sanctuary of 100 miles radius, gives a frontier of 600 miles, across which to send your supply ships out from, or bring in the incoming convoys. No enemy could have sufficient vessels to patrol these frontiers in all parts of the world. On the high seas, vessels can trust to evasion. This is not difficult in reality, and, as an instance, when crossing the Atlantic, along the most populous route in the world, seldom are more than one or two vessels sighted.

At the commencement of the late war, the grand fleet "in being" saved us from having the German battle cruisers attacking our defence vessels on the lines of communication. Submarines and aircraft had not found their proper strength, and mines had not been developed to the full; but towards the end, it was apparent that the North Sea could be closed by mines, assisted by the three flotillas. Later, when the struggle against the submarine was at its height and every small craft was required for hunting the U-boat, a host of them were kept from their proper duties in order to protect the grand fleet, in case it should go to sea. With the chain of fuelling stations and of harbours of refuge as mentioned above, with the protection of the air and the surface craft at the focal points to bring the convoys safely into port, we can establish our sea communications. Light cruisers will assist on the high seas and attack the enemy's vessels of supply. This appears to be the logical outcome of our old and new experience.

We have always been behind in every new thing. Our insistence on the small light gun, lost us action after action in 1812. We were the last to discard armour from our knights. We kept masts and sails when all others had given them up. In 1883, our Mediterranean fleet passed the French fleet at sea; they were all armed with long range breach-loading guns as their primary armament, while we in the Mediterranean fleet had not a single breach-loader, excepting the saluting guns, and our turrets had short muzzle-loading guns with a desperately poor range. It has been the same with submarines and torpedo boats. We cannot afford to stay behind in the air. We can be struck a fatal blow in the heart by anyone within air distance of us, before a single sailor or soldier has seen the enemy.

There is only a certain amount of money available for national defence, and the old services have been getting more than their share. This is bad strategy and bad policy. War, being an affair of communica-

tions, it is obvious that the weapon that is most useful for destroying or preserving communication, should have the greatest consideration when the estimates are being framed.

In 1917, the Germans determined to build over 2,000 big bombers to attack the factories around London. We got information of this. The only way to meet the menace was to build bombing squadrons to attack the aeroplanes as they were being collected, and the factories where they were being built. The zenith of production had been reached in two things, in high grade steel and first-class mechanics, and the Admiralty and the War Office refused to give up any output in order to build these bombers. The Air Ministry was formed, and we got the bombers for them. We got them just in time, and stopped the raiders coming over. When you consider that those little tiny pilfering raids that we had, stopped our output 50 per cent., you will see that it would have been stopped altogether if we had not had these machines built.

Millions of money and thousands of lives were lost owing to the fact that we had three managing directors. I can see no way of getting the proper distribution of money from the Estimates, except having one person at the head of the services, responsible for all expenditure. We were losing the war, until we got one commander-in-chief. We have known all through that in all our games and businesses and everything else, it is necessary to have one head. Why we have not got one head in the biggest business of all, I cannot say. To do away with the Air Ministry would be to do away with all advance in the air and to be beaten in the next war. If war is to be successful, there can be only one commander-in-chief on land and one on sea, and, even more, must there be only one in charge at home. Probably, as communications govern war, in time to come, men who have been brought up in the service of communications will be found the most suitable commanders-in-chief afloat and ashore. All the questions now being disputed with regard to divided control, etc., will disappear as soon as a Minister of Defence is in charge and responsible for all the fighting services.

The danger from the large raids referred to above was avoided by forming the Air Ministry, against the wishes of the Admiralty and the War Office, and then getting a priority of output for a short while.

We seem to be in an unreasoning mood. The dock at Singapore, for example, would cost about thirty millions by the time it is finished, and we do not yet know whether the mammoth that it is being built for is of any value in war. One does not build a stable for an elephant, if only a terrier is going to be accommodated. Singapore is necessary as a base and a sanctuary on our lines of communication, and our experience in the last war shows that no big ship dare go near any harbour that is known to be defended by the three flotillas, and mines.

In great matters like the defence of the country, it is no use indulging in partisanship. We must try to see what is right, and, if necessary, do violence to our love for old things with which we have grown up, in order to preserve our empire from harm. Surely in such work no bitterness

should enter. Think well, and look back on our past history. The navy exists for communications. At the end of the last war, what happened to the present type of ship? Could it hold the ring? Did it try to hold the ring? All through our history, we have had at one time or another to break away from our cherished traditions, and always, the person who tried to break away, had bricks thrown at him. This is not a question, as I say, of partisanship. It is a question for thought. Strategy is only common sense applied to imagination. Take a broad view, and look at it from every point.

"Cross to the other side, make broad your view,
Examine well through your opponent's eyes,
'Tis well to know that others can be wise,
And sometimes be more right than even you."

The motion that I move is: "In order to preserve the command of the sea it is necessary to adapt our warships and aircraft to modern requirements, since the present type of battleship no longer performs that function; the re-organisation of the naval bases thus becoming requisite."

CAPTAIN THE VISCOUNT CURZON: My Lord, Admiral Kerr, Ladies and Gentlemen,—Our Chairman this afternoon has alluded to this as being a sporting event. I should like to take it in that spirit. He has also alluded to me as a great expert. I should like to make a most emphatic disclaimer of being in any sense of the word an expert on these matters. I am merely an ordinary member of the public, with perhaps a better opportunity than some of becoming acquainted with the problems you are discussing this afternoon. That is all there is to it.

I think that perhaps a few words of explanation are necessary on my behalf, as to why it is that we are able to have this Debate here this afternoon.

On the 24th October, I saw in the *Naval and Military Record*, a copy of which I have here, the report of a speech made by Admiral Sir Percy Scott and a speech by Admiral Mark Kerr, to the Australian Natives Association at the Royal Colonial Institute. Sir Percy Scott's speech was couched in his own familiar style and apparently directed to the question of the capital ship and to the question of Singapore. Sir Percy Scott's speech was reported fairly fully. The speech of Admiral Mark Kerr was not so fully reported. The effect of these two speeches upon those who listened to them, if they believed what they were told, must have been to have considerably shaken their confidence in the decisions of the Board of Admiralty and indeed of the Government, upon these two points.

It so happened that a few days afterwards, on the 29th October, I had to make a speech at a dinner given by the Lyceum Club on behalf of the Navy League. In my speech, I somewhat severely criticised the utterances of Sir Percy Scott; indeed, I dealt exclusively with his speech, and said that the majority of people in this country were not in a position to understand the details of the navy, and that men who could write

"Admiral" after their names had not been ashamed of being a traitor to their cloth and talking about the "uselessness of the Navy," as if it were already obsolete. I also endeavoured to point out that the effect of the report of the two speeches to which I was referring must be to affect very seriously the confidence of the country in its naval advisers.

This was followed by a letter from Admiral Mark Kerr, wherein he said that he would like to argue the question before a competent audience, to prove that the present type of battleship is obsolete, and that unless the Navy were brought up to date we should lose command of the sea, which he considered was as important to us as it ever was, and the command of the air, which was equally important, as without it the command of the sea would be lost. He also stated in his letter that the advocates of the old and obsolete methods were then hampered in their advocacy by amateur friends like myself who, by using terminological inexactitudes, and abuse in the place of logic which they did not possess, gave away their case to the public. He quite well knew this was a sure sign of weakness in argument. To this letter I replied, and quoted the only apparently *verbatim* passages which I could discover from the report which had been made of Admiral Mark Kerr's speech, which was as follows: "That the Empire lives on its communications. We have fuel stations all over the world, which can be watched by aircraft with a long range of vision, and, therefore, the power to direct and warn our ships. So you will understand why we should spend the money we have, on keeping our lines of communication open, and on making them more secure and more quick. That can be done by two-thirds of the money we are now spending on ships which are obsolete before they are launched." And I pointed out that the effect of such an utterance must be to create an impression that the navy is useless, and that we could depend upon the air to do the work for two-thirds of the money, and that the inference was that the naval staff did not know their job.

Admiral Mark Kerr then accused me, in further correspondence, of having quoted a few sentences from his speech without their context, which he said altered the whole meaning. I then replied to this to say that I profoundly regretted it if it was so, but that it was the only portion of his speech of which I could find a report. I asked him where I could obtain a full report of his speech; but he was not able to help me in this matter. He did, however, send me a copy of an article which he wrote for *John Bull* on the 10th November. He also replied in another letter to the press, and one of the statements he made in that letter was that (a) A battleship in all ages is a vessel that can hold the ring for cruisers and other craft that are carrying out the function of the navy, namely, to keep our communications intact, and entirely destroy those of the enemy. The modern type should be an especial kind of aircraft carrier; (b) that money spent on the present type of battleship is money thrown into the sea, for there is no function in war for it to perform, as it can no longer hold the ring, owing to the coming of the submarine, aircraft and destroyer into the realm of practical warfare.

On the 7th November, *The Daily Mail* stated that its political correspondent had interviewed Admiral Mark Kerr, and that he had said that his contention was "not that the navy should be superseded by the air force, or that the navy was useless, but that the present type of battleship is obsolete. I maintain that we ought to build battleships capable of carrying aeroplanes. So constructed, a battleship would be able to operate against an enemy at a range of 200 miles, instead of being limited by the present range of her guns."

In the article in *John Bull* on the 10th November, the gallant Admiral first of all advocated a Minister of Defence, and outlined his scheme for a Minister of Defence. The following passages then occurred: "Now that the command of the sea has passed from the battleship of the present type, it is more than ever necessary to have a chain of communications with harbours of refuge all along the main routes of our world-wide empire. If we spend the money judiciously, our sea power will be greater than ever; but if we hurl it away on useless articles, there will be no money left to preserve the communications of the empire in peace or war. To spend ten millions or more in building graving docks at Singapore for the present type of battleship, is an act of criminal waste. The present type of battle ship is as obsolete as the 'Victory,' and this was proved in the last war. In our history we have had every kind of ship as a battleship, and the argument of the people who are against building a huge new dock at Singapore is, that the modern type of battleship which we hope is going to be the backbone of the fleet is one that can sink one of the present type, or a dozen of them if necessary, at a distance from which they will be invisible and 'unhittable.' This is the crux of the whole matter." Then he goes on to say: "At the present time this kind of battleship goes to sea in dread of all those new pests which have lately come into being. A battle fleet cannot destroy commerce or protect commerce. The only thing it can do is to fight an enemy's battle fleet, for it dare not even go near the enemy's coast to bombard it."

From all this, it is clear that Admiral Mark Kerr considers that the present type of capital ship is obsolete, that the naval staff has been guilty of an error of judgment in going in for docks at Singapore, and that the type of battleship he has in mind is some sort of aircraft carrier.

With regard to Admiral Sir Percy Scott, it has always been difficult to deduce from his utterances and from his writings exactly what he has in mind; but his chief point appears to be that the capital ship is "no damn good," and in this he is supported by a mythical midshipman. When a short time ago he was tackled by Sir Doveton Sturdee at the Royal United Service Institution, the following passage took place. Sir Doveton Sturdee, in reply to Admiral Sir Percy Scott, is reported to have said: "If you were First Lord, would you stop building battleships even though other powers continued to do so?" (Sir P. Scott): Yes, I would, but I would build something in place of them. (Sir D. Sturdee): What would you build? (Sir P. Scott): That I will not say. (Loud laughter.) I can only tell their Lordships in secret, and I don't think they are likely

to ask me." Apparently, therefore, the views of Admiral Sir Percy Scott and Admiral Mark Kerr are pretty well identical.

I will, therefore, endeavour to submit certain points for consideration.

I submit, first of all, that whether the capital ship is or is not obsolete and useless, seems to depend entirely on the assumption that the capital ship can be destroyed by under-water or air attack. It seems to me that this is the real point at issue, and unless you can prove that the modern type of capital ship is unable to stand a reasonable amount of damage without being disabled, there would seem to be overwhelming reasons for continuing to build such vessels.

The existence of the capital ship has been threatened from time to time by various new inventions, such as the torpedo, the mine, and aircraft. The advocates of these devices have always prophesied the end of the capital ship; but it has been developed so as to meet their threats with success. Down to the present time, the naval staffs of the United States, Japan and Great Britain, including that of a strong naval Board of Admiralty headed by Beatty, have accepted the present type of battleship as the principal naval unit. Their opinion is reinforced by that of another naval officer of the greatest distinction, Lord Jellicoe, who describes the present type of capital ship as "the strongest engine of war which exists for operating on the seas." He says: "The wise course to pursue is to continue to build capital ships until, if ever, it is shown that some other weapon has been found which permanently renders them inefficient. There is at present no apparent prospect of the submarine or aircraft defeating the capital ship in the next seventeen years." In naval war, the big gun is the most powerful weapon that human ingenuity has devised. Torpedoes, mines and air bombs are all most powerful weapons; but they are not weapons of precision.

I will deal with the torpedo menace first. Given favourable conditions, the torpedo is fairly accurate; but I submit that it is not a match for the gun in any respect. If we consider what happened at the battle of Jutland, where hundreds of torpedoes were launched, how many hits were scored? By far the greater percentage of losses in the battle resulted from gunfire on both sides. A German officer, whom I personally interviewed just prior to the surrender of the German fleet, informed me that the German fleet had no less than two complete destroyer flotillas at the head of the line, and yet when the action was broken off, there was not a single torpedo left in any of these ships, all having been fired. Each German destroyer must have fired not less than four torpedoes, and perhaps a good many more, and, so far as I am aware, the only hit scored was that on H.M.S. "Marlborough," who was able to maintain her course and speed and remain in action, only hauling out of the line when the action was broken off. I could mention instances where many torpedoes have been required to sink a single ship. A notable case in point was that of the light cruiser H.M.S. "Falmouth" on the 19th August, 1916, which, I believe, it took no less than five torpedoes to sink. In both the cases that I have given, the ships were not fitted with bulges, as is

the present type of capital ship, and it should be remembered that if the hull of the ship is extensively subdivided it may be made practically unsinkable from under-water attack. I believe that I am correct in saying that one of our monitors, built during the war, was still afloat after she had received three torpedoes, and that another was able to withstand the detonation of an explosive boat.

There is a story, I think a true one, of H.M.S. "Edgar" in the Mediterranean. She was hit by a torpedo, and one of her bulges was knocked off, and it increased her speed by two knots.

I think that, at any rate, I have said enough to show that the torpedo, even if a hit is scored, is not necessarily successful in sinking or even in disabling a ship.

With regard to the mine, this depends entirely for its action upon the work of fate, and now that the paravane is practically universally used, the mine may be considered to have lost much of its power as a weapon. As an illustration of this, I think I am correct in stating that the first division of the Second Battle Squadron, during the latter stages of the war, comprising four battleships, went straight through the middle of a mine field off Peterhead. Several mines were cut and seen, but no damage was sustained by any one of the ships. Here again, the provision of bulges and good under-water subdivision, in conjunction with the latest type of machinery for clearing the ship of water, will in all probability enable the ship to survive.

With regard to the menace from the air, it should always be remembered (a) to hit with a torpedo or to drop a bomb near a ship steaming at even slow speed, is a matter of extreme difficulty. It is certain to bring the aircraft within easy range of the counter-attack by air or gun fire. Experiments which have so often been referred to, have in all cases been carried out, against old types of ships, generally anchored, in perfect weather, in shallow water, a condition which must produce a maximum explosive effect; (b) the aircraft have generally flown from a shore station, and neither the shore station nor the aircraft themselves have been at any time subject to hostile air attack, and in most cases the bombs have been dropped from a comparatively low altitude, and the ships were either damaged or sunk only after they had been repeatedly hit. I do not consider that any experiment yet carried out proves that similar results could be obtained against modern ships steaming in deep water, with frequent alterations of course at high speed, counter-attacking the enemy aircraft by gunfire and by means of their own aircraft; (c) it should also be remembered that aircraft cannot operate on many days under weather conditions which often occur at sea. I do not wish in any way to contest the fact that aircraft are an added menace to the capital ship; but it is essential, before we concur with Admiral Mark Kerr that the command of the sea has passed from the capital ship of the present type, that we should exactly understand the proportions of the menace to which it is subjected.

I should like to refer to the concluding paragraph of the report on

the results of aviation and ordnance tests, held during June and July in 1921 by the Joint Board of the United States, to the Navy Department at Washington, dated the 18th August, 1921, wherein it is stated:

"(1) So far as is known, no plane large enough to carry a bomb effective against a major ship has been flown from or landed on an airplane-carrier at sea. It is probable, however, that future development will make such operations practicable. (2) Airplane-carriers are subject to attacks by vessels carrying guns, torpedoes or bombs, and will require, as all other types of vessels require, the eventual support of the battleship. (3) The battleship is still the backbone of the fleet and the bulwark of the nation's sea defence, and will so remain so long as the safe navigation of the sea for the purposes of trade or transportation is vital to success in war. (4) The airplane, like the submarine destroyer and mine, has added to the dangers to which battleships are exposed, but has not made the battleship obsolete. The battleship still remains the greatest factor of naval strength. (5) The development of aircraft, instead of furnishing an economical instrument of war leading to the abolition of the battleship, has but added to the complexity of naval warfare."

Statements have been made, I am not sure whether by Admiral Mark Kerr, but certainly by Admiral Sir Percy Scott, that, owing to the development of the submarine, the capital ship is obsolete. He has, for instance, said that 100,000 tons of battleships were sent by submarines to the bottom of the ocean during the war. The fact, of course, is that these figures did not include a single unit of the main fleet, although during the whole course of the war, either the main fleet or important portions of it were often at sea, and during the last two years of the war, at least one division of capital ships was continually at sea practically the whole of the time, and suffered no casualties.

He has said that battleships employed in bombarding the Dardanelles, excepting those which went to the bottom, hurried away at the sight of a submarine; but he does not point out at the same time that they were mostly anchored or proceeding at slow speed, and had they remained, would have been an easy target for a submarine, especially in view of the primitive methods of defence against submarines which were then available, and, had they been sunk, a yet further edition of hate would probably have fallen from the gallant Admiral upon those responsible.

He has said that no battleship dare show her nose out of harbour, unless escorted by destroyers to keep the submarine down. Everyone knows that it is perfectly true that all large ships and merchant ships were screened during the war by destroyers; but surely this was only a measure of precaution, the effectiveness of which was proved over and over again, and the destroyer-screen for the main fleet was never effectively penetrated.

The Fleet was never prevented from proceeding to sea or returning to base by German submarines.

Sir Percy Scott has further said that our ships were sent to Bermuda

to carry out their gunnery practices. Apart from the old gunnery school tender, H.M.S. "Cæsar," which was sent to Bermuda to economise escorting ships, gunnery practices were continually carried out throughout the whole course of the war by the main fleet in the Moray Firth, the Firth of Forth, the Pentland Firth and in the North Sea. Also torpedo exercises were carried out in the same area, and those exercises were never seriously or successfully interfered with by enemy submarines.

Sir Percy Scott has said that on account of submarines, our battleships did not perform one of the functions they were built to perform, namely to bombard German ports. Admiral Mark Kerr has also stated that our battle fleet dare not even go near the enemy coast to bombard it. I have never before heard it advanced by such distinguished officers that one of the main functions of our battle fleet was to bombard enemy ports. I have always understood that its function was as stated by Admiral Mark Kerr, namely, to provide a backing for those ships which were keeping open sea communications, which, as he truly says, is the only reason for which the navy exists, and in so doing to seek out the enemy's main fleet and, if possible, bring it to action. Neither Admiral Mark Kerr nor Admiral Sir Percy Scott, to judge from their public utterances, seem to be in any way conscious of the tremendous advance in anti-submarine warfare which has taken place since the latter part of 1918. I do not think that it would be considered a wild conjecture to assert that the submarine is a declining menace to all surface craft, and in the case of warships may soon become comparatively powerless if the present advance in methods of protection and acoustic detection is maintained.

Both Admiral Mark Kerr and Admiral Percy Scott, however, seem to envisage an alternative type of battleship. Admiral Mark Kerr has defined it as being a battleship capable of carrying aeroplanes, by which I suppose he means a species of aircraft-carrier; whereas Admiral Sir Percy Scott has refused to define it. I should have thought that it was obvious that if the battleship is obsolete because of its vulnerability, the same argument would also apply to the aircraft-carrier. I should have thought that an aircraft-carrier was infinitely more liable to destruction by a torpedo or bomb than a battleship.

All capital ships are now fitted to carry aeroplanes, yet they do not satisfy the requirements of Admiral Mark Kerr. It is obvious that the gallant Admiral must contemplate something more in the nature of an aircraft-carrier; I assume that he has not forgotten that the number and tonnage of our aircraft-carriers are strictly limited under the Washington conference, but it is certainly the intention of the Admiralty committee to build aircraft tonnage up to the maximum limit under the Washington conference. The number of aircraft-carriers allowed us under the provision of the Washington conference is quite sufficient to provide an adequate defence for the trade routes of the empire, and at the same time to meet the needs of the fleet. I do not, therefore, understand what the gallant Admiral has in view when he says that we can "keep

the lines of communication open and make them more secure and more quick for two-thirds of the money we are now spending on ships which are obsolete before they are launched."

If the present type of capital ship is obsolete because of its vulnerability, so also, I submit, are all other forms of surface-borne craft, whether warships or merchant ships. If this is so, it will then be up to those who make such claims for under-sea and air warfare to show how they can protect and keep open our trade routes in the case of war taking place perhaps on the other side of the world, where distances are measured in thousands of miles instead of hundreds. Not to build the two new capital ships, in the event of another war within the next twenty years, would be to condemn thousands of officers and men in four older, partially worn out ships of inferior design, insufficient protection, weaker armament and low speed, to go to sea and endeavour to fight an enemy within range of whom they might never get, and who might be able to destroy them as completely as the three battle cruisers were destroyed at the Battle of Jutland by the better design of ship.

The conclusion is that the present type of capital ship remains to-day, as it has always been, the unit on which all other naval forces depend for support, and which, when the critical hour of the fleet action takes place, becomes at once the dominating factor. By her construction and design she is able to give and take the hardest blows. She would always require auxiliary forces to enable her to develop her power to the utmost, and it may very well be that the capital ship of the future will be a very different craft from what it is to-day. To quote Lord Beatty at the Lord Mayor's banquet this year: "In the distant past the capital ship was the trireme. To-day it is the battleship. To-morrow it may be something different, something that can fly, dive, or perform other evolutions which to-day seem impossible."

The other point upon which the naval staff are attacked is the question of Singapore. I think that I am correct in stating that Admiral Sir Percy Scott has criticised its decision to establish a docking and repairing base at Singapore as "criminal lunacy," and Admiral Mark Kerr has described it as "criminal waste." To-day's *Daily Mail* calls it "the Singapore Folly."

It will, therefore, perhaps not be out of place if I submit certain considerations with reference to the folly of this "criminal decision." It is essential to remember that the navy exists to keep open our sea communications in time of war. If this is effectively done it will ensure the unrestricted movement overseas of the military and air forces of the country. It will protect our seaborne trade; the enemy's trade will be destroyed, and the operations over sea of their military and air forces will be prevented. In order that the fleet can operate, therefore, in the East, it is necessary to have a base where the ships can be docked and repaired.

(a) A navy cannot carry out its task of keeping open sea communications unless it is able to cover all our imperial territories and sources of supply.

(b) A fleet cannot continue its operations unless it can obtain supplies of fuel, and unless ships can be docked and repaired when necessary.

(c) The safety of the whole empire is entirely dependent on the existence of the fleet, and, without a base in the east, it is extremely doubtful whether the fleet could be sent there.

(d) If the fleet is not sent to the east in the event of far eastern war it is obvious—(1) that British Possessions in the Far East would fall into enemy hands; (2) that all our sea-borne trade east of Suez would be wiped out; (3) that India, Australia, and New Zealand would be open to attack and invasion.

It is, therefore, worth while to examine the advantages of Singapore. From studying a map it will be seen that Singapore covers all approaches to India and the Indian Ocean. It covers the sources of our oil supply in Burma and in Persia, and it lies close to the direct route to Australia and New Zealand, either from the far east or from the west.

It has been said: "Why do you choose Singapore? Why not go to Sydney?" If the fleet base went to Sydney the fleet would have to get to it *via* Ceylon and Singapore. If the oil fuel supplies at Singapore were destroyed, the fleet would be in a very dangerous position. If the fleet were based on Sydney, there would be nothing to defend Hong Kong, Singapore and north Borneo from the enemy. There would be nothing to defend our sea-borne trade in the Indian Ocean or in the East generally, and there would be nothing to prevent the enemy from themselves seizing Singapore. Having done so, they could cut off the fleet base in Australia from England too.

It has been said that Singapore is a menace to Japan. As against this, it is worth while noting the report of a deputation from one of the parties of the Upper House in Japan, who are reported to have sought information from the Japanese Government as to the proposed base at Singapore and the position as regards the Washington agreement and the signatory powers. They were received by the foreign and naval Ministers, and the latter told his interviewers in substance that the extension of the base at Singapore had been long contemplated by Great Britain, who, he believed, had been compelled by the abrogation of the Anglo-Japanese alliance to take such a step to secure the safety of her interests in China and India. Count Uchida, the Foreign Minister, is credited on the same occasion with the remark that, as Singapore was outside the sphere defined by the Washington agreement, the question of its defence was a purely British concern.

It is worth while also to remember a statement which was made in the *New York Herald* on the 3rd May last, wherein it was stated semi-officially: "There is no intimation in any quarter that Britain . . . is violating either the principle or the letter of the Washington Treaty. There is no likelihood of any protest over the decision, as it is admitted that Britain is within her rights, and it was understood during the Washington Conference that British naval experts had planned to develop

Singapore as a first-class naval station as soon as it was decided to give up further fortification of Hong Kong under the Treaty."

It should be remembered that at present there is no dock available for bulged ships after leaving England, and it should be remembered that all capital ships and aircraft carriers of the largest type are now fitted with bulges. It should also be remembered that both Australia and New Zealand are extremely anxious with regard to the base at Singapore, and in the case of New Zealand, £100,000 has already been voted towards its construction, while the Government of the Malay States has decided to make a free gift of all the land required for the base and for the aerodrome.

The public utterances of Mr. Bruce and Mr. Massey with regard to Singapore at the recent imperial conference should also not be forgotten.

Then there is the decision of the imperial conference which appears on page 17 of the White Paper. The following principles had been laid down—that there must be: "(b) Adequate provision for safeguarding the maritime communications of the different parts of the empire and the routes and waterways along and through which their armed forces and trade pass. (c) The provision of naval bases and facilities for repairs and fuel so as to secure the mobility of the fleets." Paragraph 4 on page 17 says: "In the application of these principles to the several parts of the empire concerned, the conference takes note of the deep interest of the commonwealth of Australia, the dominion of New Zealand and India in the provision of a naval base at Singapore, as essential for ensuring the mobility necessary to provide for the security of the territories and trade of the empire in Eastern waters."

Having regard to all these facts, it seems to me, it is almost time that officers of the great distinction and knowledge of Admiral Mark Kerr and Admiral Sir Percy Scott gave up talking about the decisions of the naval staff as if they were criminal acts. After all, the naval staff have not got any axe to grind whatever, and in the case of Singapore, whether the empire is defended by aircraft or by sea-borne craft, the only possible base for its Eastern defence is Singapore itself. With Singapore in hostile hands the whole of the eastern portion of the empire would be completely defenceless. Not to establish our defended base at Singapore would be to signify to the world that we are content to allow the eastern portion of the empire and our eastern trade to exist on sufferance, and that if they are attacked, we can do nothing to protect them.

In conclusion, it seems to me that the country is faced with the choice of either relying upon the decisions of the naval staff, composed of officers who held high command at sea during the whole course of the war, or practically telling them that they do not know anything about it, and preferring to accept the advice of Admiral Mark Kerr and Admiral Sir Percy Scott, who did not serve at sea during the whole course of the war. I do not wish to lay down a doctrine of infallibility; but it seems to me that if you have a naval staff and ignore its decisions, the necessity for that staff is no longer apparent.

With regard to the question of a Ministry of Defence, I understand a lecture is to be given on a future date with reference to this subject; but it has been advocated by Admiral Mark Kerr, and, therefore, I would only like to say this, that one of the first problems to be considered if a Ministry of Defence were constituted would be who should become Minister. It would obviously be the most important ministry in the country, and unless the Prime Minister were able to undertake the duty, a somewhat anomalous situation might easily arise. I would point out that in the late war, the Prime Minister, as head of the war cabinet, undoubtedly filled the position of Minister of Defence. It also seems to me that to constitute a Ministry of Defence might very easily entail the duplicating of existing staffs. If this were so, administrative economy would not be realised. It seems to me that what is wanted is not exactly a Ministry of Defence, but a better co-ordination and *liaison* between the existing staff colleges, and very likely the constitution of a joint war college working under the Committee of Imperial Defence. I believe this would be a far better and less expensive way of securing greater co-ordination of the fighting services.

I would, in conclusion, on this point, only like to draw attention to a speech made by the Secretary of State for Air, at Colchester on the 17th October, wherein he said: "We must proceed by stages. We cannot suddenly scrap three great departments of defence and produce a single superman as a dictator over the defence forces of the Crown. We cannot produce this superman suddenly. It takes a long time and it is a difficult thing to produce this combination of Mr. Churchill and Sir Eric Geddes. For the time being, therefore, the Cabinet is consolidating the duties of the Committee of Imperial Defence, and is making it the body that is to co-ordinate the work, the policy, and to some extent the finance of the three fighting departments."

THE CHAIRMAN: While the two debaters are getting their breath, I think I might call on some of those who have signified their wish to speak. I, therefore, call on Vice-Admiral Bernard.

VICE-ADMIRAL BERNARD: My Lord, Ladies and Gentlemen, I did not expect to be the first one to get up to speak; but at the same time I am very grateful to the Chairman for this opportunity of making a few remarks on the statements of Admiral Mark Kerr.

I understood Admiral Mark Kerr to say that during the last war our battleships did not hold the ring, that they did not do their job. I submit that our battleships did do their job. I was very surprised at the statement—and I could not understand what Admiral Mark Kerr meant when he said—that only one battleship went outside the North Sea. Did he intend to suggest that they could not have gone outside the North Sea if they had wanted to? I think that the whole of the grand fleet went outside the North Sea on the occasion on which one of them was sunk. That might be a point in Admiral Mark Kerr's favour.

During the war I happened to be in command of a battleship. She was not of the Dreadnought type; but we did what I imagine any of the capital battleships could have done as well. I was ordered out to the Dardanelles. I did not know whether or not I should get a destroyer escort. As a matter of fact, they managed to

scrape up one or two destroyers to see me clear of the Channel. After that, without an escort, I went out to Gibraltar, stayed there a day, went on without an escort to the Dardanelles, and reported myself at Mudros.

Sir Percy Scott, I understand, has said that when the "Triumph" and the "Majestic" were sunk, all the battleships rushed into Mudros Harbour and tied colliers alongside them. I should be very much interested if Sir Percy Scott would tell us which of the battleships tied colliers alongside for protective purposes. Having been out there, I personally know of no occasion on which a battleship made use of that form of defence.

While I was out in the Dardanelles, I had to perform various duties that fall to a battleship, and the thought that submarines could prevent us never occurred to me. I went on various jobs, and we never contemplated such a thing as being prevented by submarines. Among other duties that I performed was that of proceeding into the Gulf of Xeros, to heel the ship 10 degrees, and remaining stopped while I bombarded Gallipoli over the land with the assistance of a kite balloon. The German submarines did not stop me then.

On another occasion I was ordered up to Suvla Bay. There were other battleships at Suvla Bay, and we lay inside the nets. We were not prevented by submarines from doing our job there. We stayed there.

After the sinking of the "Triumph" and the "Majestic," battleships did not attempt to lie at anchor; but later on, when the blister ships came out, they lay at anchor for days, and no torpedo was ever fired at them. I believe the reason was that the German submarines, having no base conveniently near from which to replenish, felt they could not afford to expend a torpedo without sinking a ship. The Germans, not having command of the sea, were not able to seize a suitable base near enough to the theatre of operations. We were able to seize and to hold a base at Mudros because of the command of the sea given to us by our battle fleet. From that base we were able to keep our ships and the army supplied with all that they required.

I support what Viscount Curzon said about torpedoes. I happened to be at the rear end of the line at the battle of Jutland. The torpedoes were coming in such shoals that I thought we were bound to be hit; but they all passed through in the most extraordinary way. That confirmed the view which I had held before the war, that the torpedo is an extremely inaccurate weapon.

I was very much interested in the account which Admiral Mark Kerr gave of the bombing of one of the American battleships in peace-time. What struck me most forcibly in his account was that he never called the attention of the audience to the fact that no attack was being made on the seaplanes attacking the battleship. The seaplanes were allowed to attack the battleship without any defence against them. I submit that had the battleship been able to fire her guns, and had she had her own protecting fighting planes, as she would undoubtedly have had in war, the results might have been very different.

I rather anticipated when I came here that the debate was going to be on different lines. As matters stand, I will follow the advice of the Chairman, and not touch on subjects which might be contentious and which might spoil the harmony of the meeting.

CAPTAIN ALTHAM: My Lord, Ladies and Gentlemen, my excuse for taking part in this distinguished discussion is a humble one, but for the more responsible years of my life I was a gunnery officer, and, therefore, may claim to have a certain amount of knowledge of the potentialities and the limitations of big ships and their offensive and defensive powers. Also I had the good fortune during the war to do

probably more flying than the average naval officer, and, therefore, I can claim to have studied the problem from a more practical point of view than that which the mythical midshipman so often enjoyed at the masthead of a battleship.

Let me call attention to a few fundamental facts. The safety of the empire must rest on forces and weapons which have been tried and proved, and not on futurist potentialities. The battleship was the backbone of our sea power in the late war. It enabled every lesser warship to live on the high seas, and thereby constituted the basis of our defence against invasion, and all those measures which we had to take to preserve our overseas communications.

If we do away with the battleship, we must have something else which will fulfil its functions with equal certainty.

Aircraft are admittedly rather uncertain weapons. Even with the vast strides which each year brings, they have still fundamental limitations in such matters as endurance, weight carrying, inability to hover or to remain in position over a certain area more than a few hours; immobility in a fog or in bad weather.

What new factors have appeared which affect the powers of the capital ship?

One arises from the claims made for torpedo craft—surface and submarine. Another is the ability of aircraft to use the torpedo and the bomb.

The torpedo is a very old enemy. Its limitations at Jutland have already been explained to you by Lord Curzon. Submarines never arrived on the scene of that action at all. The speed was too great. This is a fundamental handicap to under-water craft. They did not account for one single capital ship of the grand fleet, nor did our submarines account for one of those of the high sea fleet throughout the war.

As to destroyers, the high sea fleet charged through the whole of our massed flotillas at night, and only lost one battleship in a concentrated attack at daybreak. We did not lose a single capital ship of the grand fleet from destroyer attack throughout the war.

The torpedo aeroplane has to drop its torpedoes within 10 feet of the water, and within some 1500 yards range of its target. These limitations, it is true, may improve in time; but so far we have no experience as to how torpedo aircraft would fare if all the available means of defence which we have, were employed against them.

The modern capital ship, the post-Jutland ship, is infinitely better protected under water than those which took part in the war; yet, as you have already heard, H.M.S. "Marlborough" was torpedoed during that battle and remained in the line.

There is considerable difficulty in launching an aeroplane with a heavy torpedo from the deck of a carrier; in fact, I understand it has not yet been done, although I do not suggest it is an impossibility.

A bomb attack on a ship with a well-armoured upper deck, is feeble compared with the plunging fire of shell. The striking velocity of a bomb is that due to the height at which it is dropped. Its armour-piercing capacity is not comparable with that of an armour-piercing shell.

Under-water bomb attack is comparable to the mine or torpedo, against which modern ships are well protected. It is an exceedingly difficult form of attack to deliver with accuracy. In the first place, the target is the annular space round the ship, not even the ship itself, and, secondly, there is still unsolved the problem of manufacturing a fuse to burst the bomb with certainty at an exact distance under water. Aircraft with heavy bombs have the same difficulty as a torpedo plane in getting off and on the carrier, especially in bad weather. There are further grave difficulties in launching effective attacks by aeroplanes carrying really heavy bombs

or torpedoes. One of the essential features of mass attack is that the aeroplane should have good powers of climbing—in fact, be capable of a good performance. These qualities are not easily obtained by machines capable of carrying very heavy weights.

The idea of a single aircraft carrier and a battleship engaging in a duel, seems to me to be ludicrous. Battleships do not roam about the seas singly any more than do aircraft-carriers. The real comparison we have to make is that of a battle fleet with its attendant aircraft-carriers, as opposed to a fleet consisting of aircraft-carriers alone. That appears to me to be the nature of this discussion, when transferred from this room to blue water. Comparing these two fleets we find (1) The battleships are very hard nuts to crack. They are capable of prolonged action and considerable resistance. (2) The aircraft-carrier fleet is helpless in bad weather or mist. (3) Aircraft-carriers are most vulnerable to every form of attack,—whether from the air, or by fast cruisers, destroyers, or submarines, (4) Their aircraft are very soon expended. (5) Aircraft-carriers do not, in fact, fulfil our axiom of being a certain weapon.

Admiral Mark Kerr has alluded to the necessity of having something in the nature of a hybrid battleship aircraft-carrier. A big hangar, landing deck, and other appurtenances for carrying and flying off aircraft and for providing facilities for their return, can only be secured at the price of surrendering a great proportion of the main armament, bearing in mind practical limitations of tonnage.

The net result would be an inefficient aircraft-carrier and a ship lacking all the essential features of a battleship.

Let us get rid of the visionary notion of these floating aerodromes, loosing out unlimited numbers of huge aircraft with colossal bombs or torpedoes 200 miles from the impotent battleship, and let us come down to realities of tactics, technique and seamanship, and we shall see that we are on far safer ground if we stick to a policy of putting the maximum gun armament into the best protected ship with adequate speed and good sea-keeping endurance—a ship that will stand a lot of knocking about and which can fight in any sea and in any weather. Give a squadron of such ships its quota of aircraft, carried in specially designed ships, proper aircraft-carriers, from which they will have the best possible chance of being able to perform their air functions, and we have a main fleet ready for all emergencies. Do away with the tough battleship, and rely solely on the aircraft-carrier and light, fast ships, and conditions will inevitably arise when our "light and airy," fair weather navy must be at the mercy of one which still possessed heavy gunned, well protected vessels.

We need not go far to recall an example of such conditions.

When the Atlantic Fleet recently paraded before the Premiers of the Dominions, it put to sea to manoeuvre in the comparatively sheltered waters off the Isle of Wight. The Fleet aircraft, however, were unable to take the air. Suppose our fleet had been setting out to meet an enemy's battleships. It would have been a black state of affairs if it had been composed exclusively of aircraft-carriers, or if 50 per cent. or more of our battleships' armaments had been surrendered, for them to carry aircraft.

The trouble with some air enthusiasts is that they are always wanting to replace old weapons with their new one. The truth is that we have got a new element to deal with in war, and we have to increase our insurance. It is tiresome and it is expensive, but if we want to be safe we have got to have both the new weapon and the old one. We want aircraft: they are a vital unit of the Fleet; but they have not replaced the battleship any more than the bomb and the torpedo have replaced the gun.

COMMANDER BOOTHBY: My Lords, Ladies and Gentlemen. Speaking as an "obsolete" torpedo officer, it appears to me that a tendency has been shown to deprecate the value of the torpedo as a weapon.

Why was the action at Jutland fought at such a long range? Because the gunnery people were afraid of the torpedo. Why was it that the "Edgar" had to sacrifice two knots speed, as stated by Lord Curzon? Again, fear of the torpedo. If the torpedo is really of no use, what is the object of all the under-water protection now being built into ships?

If we consider the thousands and thousands of tons devoted to guns and their armour in capital ships, compared to the small weight allowed for the torpedo armament, the latter certainly made its influence felt in due proportion during the war.

Everybody here agrees that the capital ship is necessary, and that the present type of capital ship is not that required in the future. The question is, what is the capital ship of the future to be? Few will agree with me, I know, but I believe it will be the helium-filled airship.

I object to the sins of the aeroplane being visited on the airship. We have people talking about the radius of aircraft being only 200 miles, and saying that they cannot take the air in all weathers, that they are very vulnerable, and so forth. I submit that this is not true of the helium-filled airship, and that the helium-filled airship is the most formidable weapon there is. It is very invulnerable. I think that in twenty or thirty years' time we shall have come to the point where we shall find that the airship is the capital ship. The Americans have their helium-filled airship, the "Shenandoah," now.

Sir Charles Parsons has pointed out that surface ships are limited in size by the Suez Canal, depths of harbours, etc. Airships are not limited in that way. The airship has got to come. That is one point of view.

Some people are against the Singapore Dock, because they say that it is a naval base and we are spending money on dry docks there, which will soon be useless owing to air development. We should take this point into consideration, that the two capital ships we can now build are the last capital ships we can build for many years. It is entirely right to build them, because the airships have not yet come, and the interval has to be filled in somehow. There is no other way except by building these capital ships. They must be docked in Singapore.

We have to build our Singapore base as an imperial base; it will not be for these two capital ships only. It will be a base for the air and for the army and the navy as well. These docks at Singapore may be quite obsolete in twenty years' time for docking battleships, but it is possible that, if they are dug big enough and deep enough now, they may be quite useful for putting airships in. I believe it will be found possible to put an airship into a dry dock, under favourable conditions. I think the Admiralty programme is good and sound at present, but I think that you ought also to look ahead.

The new capital ships have to come, and the nation which first develops them will get ahead. With that in view, let us carry out all the research work possible now. At the moment, this country is doing nothing to prepare for the coming change in the type of capital ship—whatever it may be.

THE CHAIRMAN: I propose now, unless there is anybody who particularly wishes to speak, to call on Admiral Mark Kerr for his rejoinder.

ADMIRAL MARK KERR: One thing is quite certain: the noble Viscount wrote out his criticisms before he had heard my paper.

I will try to answer the speakers at the same time as I answer him.

I stated particularly that the grand fleet saved us, as I have said in one paper after another. But the aeroplane and the submarine had not come to their strength at the beginning of the war, and in fact they were very inferior. By the end of the war I think we had a minefield right across the North Sea. I believe that the whole of the entrance could have been perfectly well blocked by that minefield, assisted in the way I have already indicated. That is only my belief.

The second thing is this: I have said that I believe that it is perfectly possible to build an unsinkable capital ship, with guns. But let us get back to the groundwork. I have asked several people, people who commanded big fleets in the war: "Would you like to be sent over to the enemy's coast when it was not to your advantage to fight a battle, with the present type of battleship?" That is the thing. We can make the present type of battleship itself unsinkable practically; but when you have got it, what is it going to do? Our whole navy exists for communications. How is it going to keep the ring when it cannot keep at sea?

There was another thing said. Somebody stated that I said no battleship went out of the North Sea. I must have spoken very indistinctly. I said that, except in the North Sea in the last two years of the war, only one battle fleet went to sea. That was the Austrian. They lost one big ship, and another was very much damaged.

The fact that, in the Battle of Jutland, so few torpedoes struck was due to the wisdom of Lord Jellicoe and his Admirals. They determined to turn away. Lord Jellicoe was much criticised in the navy and out of the navy for that thing. But let us also remember that the Germans were of precisely the same opinion. They came to the conclusion at the council of Admirals that, if torpedoes were fired, they must turn away. Experiments were tried after the war, and they fully bore out the wisdom of that. The battle of Jutland was not won in the daytime; it was won at night. If you read the accounts from Germany, you will read of the mines which they struck—there were eleven explosions—when they passed over the minefield laid by the "Acteon" during the night. The ships wounded by those mines, and the ships wounded by the destroyers, found that their dockyards could not cope with them, and from that moment they gave up all hope of doing anything with their battle fleet. It was the mines and the torpedoes that finished them, as far as their grand fleet went. The reports have shown that since. It was the fact that the dockyards could not cope with the damaged fleet which finished them off. That was Lord Jellicoe's wisdom. ("No.") It is all recorded. I read it all, and I thought that you might have done so, also.

Then somebody criticised me by saying that he did not know that it was the function of the battle fleet to bombard an enemy's base. I never said that it was. I was talking about the Singapore dock. The argument brought up by the people in favour of building a big dock there, is this: "Suppose that an enemy's battleship fleet came there, and we had no

battle fleet to send out." I said I did not know that any battleship fleet would go near a base at present. I have always been criticised as though I objected to Singapore as a base. I have never said anything else but that Singapore is absolutely necessary to us as one of our lines of communication. The only thing I have disputed, is the way in which it should be kept inviolate from the enemy. I believe that it could be kept inviolate without battleships lying there in harbour.

The main facts still remain. If it is not to their advantage to fight, a navy is certainly not going to send out a battle fleet. With the present type of ships a blockade can no longer be prudent tactics. I believe that we can keep our communications by producing a new type of battleship which can hold the ring, because the present type, I think it is fairly well shown, cannot go out and venture into the enemy's waters as they used to do in the old days.

With regard to the Minister of Defence, it is, I think, easier to find one good man than three.

THE CHAIRMAN : Now I call on Viscount Curzon for his rejoinder.

CAPTAIN THE VISCOUNT CURZON : My Lord, Admiral Mark Kerr, Ladies and Gentlemen,—Of course Admiral Mark Kerr is perfectly correct when he says that I wrote my paper out before hearing his. That was obvious.

It is true that some of the points have already been dealt with; but let me take some of the points in Admiral Mark Kerr's paper.

First of all, with regard to blockade, Admiral Mark Kerr, I submit, contemplates a blockade enforced by capital ships, cruising up and down, just on the horizon, off the enemy's coast. I say that would be indeed criminal waste and criminal lunacy, and that what we should rather have in mind is the distant blockade, such as was exercised by the grand fleet in the North Sea throughout the war.

With regard to the instance which he gave of an aeroplane torpedo attack on a fleet, it is quite true, I have no doubt, that a perfectly invulnerable fleet going along can have a smoke screen put up around it and can in due course be torpedoed with dummy torpedoes, if they will only run properly, and if the fleet maintain a steady course and speed; but at the same time, what would have been the effect of that torpedo attack if they had been subject to a vigorous counter-attack in the air? I regard the best antidote to the aeroplane as the counter air attack.

It has been said that the only thing that kept the German Fleet away from Scarborough was the fear of mines. I submit that there was another thing; namely, the fear of the grand fleet and the capital ships that it contained.

The gallant Admiral said that, of course, his form of capital ship should have blisters. I would like to emphasise the point that the aeroplane-carrier fitted with blisters has to be docked in the same way as any other surface-craft, and if you have not a dock to put her in at Singapore, or something of that sort, she cannot go out there. It is true that she

may be possibly a small type of carrier; but if you have a small type of carrier what effective use is she going to be to the air arm of the navy? Aeroplanes take up a great deal of space. I have been on board some of these aircraft-carriers, and I have seen the huge amount of space required. If you only have a very small ship, she will not carry many machines.

Admiral Mark Kerr instanced the case of the Austrian fleet. The "Szent Istvan" was the name of the ship that was sunk. She was sunk with a 14-inch torpedo. I believe that that is about the only instance known, in which a 14-inch torpedo has ever sunk a ship. I think that it would take a good many of them to sink or disable one of our capital ships. A sister ship to the "Szent Istvan" was handed over on the conclusion of hostilities to the French government, and it was used as a target for heavy gunfire. After only very few salvos, she capsized and sank. I think that proves that those ships were of defective design and inferior stability.

Admiral Mark Kerr said that at the end of the war, the North Sea was closed to ships by mines. I have a distinct recollection of times when the grand fleet went out. It was never deterred by the fear of mines from proceeding to any particular area. I remember on the 25th April, 1918, when the final engagement of the war might have taken place and very nearly did take place, the German high sea fleet was only missed by 20 miles, or something of that sort. I have never seen so many mines as there were all over the place. No one paid the smallest attention to them. The whole fleet went straight through them.

Admiral Mark Kerr said something about doing away with the Air Ministry. I do wish that people who believe in the present organisation would not have at the back of their minds the idea that there is some subtle idea of doing away with the Air Ministry. All we say is that it is quite wrong that the eyes of the fleet should be under the control of another ministry; it would only paralyse the usefulness of our navy to meet another fleet which is not similarly organised.

Admiral Bernard gave one instance: he said that a ship was sunk on the one occasion when the fleet went outside the North Sea. They did go out on more than one occasion. The ship that was sunk was, of course, H.M.S. "Audacious." She was sunk by a mine in an area where there were not known to be any mines at the time. She had no paravanes and no form of under-water protection. Furthermore, she was not fitted with the latest pattern ejectors. It was the opinion of all on board that had she been so fitted they would have been able to keep the water under, and probably have been able to save the ship.

Commander Boothby said something about the battle of Jutland being fought at a very long range. I think I am right in saying that the battleship fleet were engaged with the enemy's battleship fleet at a range of 8,000 or 9,000 yards. I do not call that a very long range. It is true that certain stages were fought at very long range.

Admiral Mark Kerr in his rejoinder said that the battle of Jutland was won at night, and in his opinion largely won by torpedo attack and

by the mines of the "Abdiel." I had the opportunity, just before the German fleet surrendered, of talking to a German officer who had been turret officer of the "Kaiser Friedrich der Grosse." He told me that at the end of the action, or towards the end of the action, the German battle cruisers had very little ammunition left; they had only got about one-third of their outfit left, they had had very severe casualties, and had suffered very heavy damage indeed from our gunfire; he also told me that the Königs, the leading division of German battleships, had also expended a very large amount of their ammunition, and that they also had suffered terrific damage and very heavy casualties indeed; and that the second division of battleships, in which he was, the Kaiser class, had not fired quite so much ammunition, but that they also had suffered a certain amount of damage, and so on right down to the tail of the line. They were so shaken by the effect of our guns that there was no question of their even coming out to sea again to fight.

I can only thank you very much indeed for having given me the opportunity of this discussion. I hope that it may help to put the question into its proper proportions.

THE CHAIRMAN: Ladies and Gentlemen, it is my duty to sum up the discussion. I can promise that I will not take up much of your time.

In the first place, it is not open to me to take any notice of the valuable and interesting comments made by Admiral Bernard, Captain Altham, and Commander Boothby: we are only concerned with the two protagonists; but I think that I may say on behalf of the council, and of all this audience, that those remarks, based on intimate professional knowledge, and bringing, as they did, a certain amount of technical detail to the discussion, were of great value to all of us who have been trying to learn.

I want to call your attention to the actual terms of the resolution, in order that you may see what it is that you have to decide in your minds. The resolution is this: "In order to preserve the command of the sea, it is necessary to adapt our warships and aircraft to modern requirements, since the present type of battleship no longer performs that function; the re-organisation of the naval bases thus becomes requisite." You will see at once that with most of that resolution everybody is bound to agree. Clearly, it is a constant and standing necessity to adapt our warships and aircraft to modern requirements. We have only one object in view, and that is to keep the command of the sea, in order to preserve our national existence. There is, therefore, no point of disagreement there. With that adaptation of ships and aircraft to modern requirements, it follows as a necessary and natural consequence that naval bases all over the world must be similarly altered and improved in order to take the types of ships and aircraft that we have in use at the time. So far, then, Admiral Mark Kerr has framed his resolution in terms with which everybody is bound to agree. There is only one point outstanding, and that is the clause which ought to have come as a preamble, "since the present type of battleship no longer performs that function." The function is the preservation of the command of the sea. The whole issue, then, which Admiral Mark Kerr sets out to prove is that the battleship no longer preserves the command of the sea; that in other words it is obsolete.

ADMIRAL MARK KERR: The present type.

THE CHAIRMAN: The present type. What did he say? I am naturally not going to intrude with any opinion of my own; but I want to remind you of what he said in order to prove that contention. You will remember that he began by reminding us that the old plan was to chase the enemy fleet and then blockade him in his harbours, and he said that this was no longer possible owing to these pests of the submarine and the aircraft. But he did not develop that very much further. You will have noticed that in order to illustrate this contention that the battleship was obsolete and that this old plan of dealing with an enemy fleet was no longer possible, he confined himself (he will interrupt me if I am wrong) to giving you the results of experiments which were made in peacetime; in fact, after the war. What was Viscount Curzon's reply to that? He gave you the actual facts of the war. He reminded you that, so far from it being impossible to blockade an enemy's fleet and keep him in his harbour, that is precisely what our fleet did during the war; but they did it in a different way, naturally, from the way in which it was done in the days of Nelson,—for those very reasons which Admiral Mark Kerr so eloquently set forth; namely, the phenomenal advances which have been made in the three great essentials to all strategy in all ages,—speed, range and invisibility. It was on that account that our fleet blockaded the German fleet just as it was done in the old days of sails, but at a greater distance.

Admiral Mark Kerr did not seem to me to reinforce his argument that the battleship was obsolete, by going into any technical details; he satisfied himself with very little more than a bare statement to that effect, and he said that it was owing to the flotillas of submarines and aircraft and the present use of mines. Those were the three things which he said made the battleship obsolete.

His opponent dealt with those three new dangers to the battleship. You will remember what he said. He pointed out to you that, after we found out in the war how exceedingly dangerous the mines were, means of dealing with them and dealing with them in a very satisfactory manner, as the results show, were found, principally in the shape of the paravane. I do not think that he mentioned the mine sweeper; but that we all know. Then he dealt with the attack by aircraft, and his point was that bombs thrown from the air, just like torpedoes, are not such weapons of precision as is the big gun. He gave arguments based on facts to show that the submarine is—I think that these are his own words—"a declining menace."

It seems to me that thus far Captain Lord Curzon had the best of the argument, because Admiral Mark Kerr merely stated that the battleship was obsolete owing to the existence of those things, but he gave us nothing in the way of technical detail and still less in the way of actual experience in the war. He did give us some experiments made in peacetime, but nothing in the war, to illustrate and enforce his arguments.

There is one other point. I think that it was a strong one. It was made by Captain Lord Curzon. Admiral Mark Kerr naturally, having condemned the present type of battleship, tells us that in his view the type that ought to be substituted is an aeroplane-carrying ship, and he had in general terms said enough to show how in his view that type of vessel would be used. But Captain Lord Curzon had what seems to me a strong reply to that. He said that if the present type is obsolete for the reasons given by his opponent, so are all other surface ships. You cannot get away from the argument that the aeroplane-carrying ship would be at least as vulnerable as the existing battleship.

Those were the arguments on the one point, really the only point at issue, namely, whether or not the present type of battleship is obsolete. I submit to you that I think that the strongest case was made out by Captain Lord Curzon.

The other point was that of the Singapore base. Here, again, I think, the weight of argument was on the side of the challenged, Captain Lord Curzon. Admiral Mark Kerr gave us a vivid illustration of what was passing through his mind. He admitted, of course, that the Singapore base is necessary; but he said: "You do not build a stable for an elephant if you only want a kennel for a terrier." But we had from Captain Lord Curzon an extremely interesting statement of all the strategical and tactical reasons for maintaining that base, and for maintaining it in a condition adequate to receive the vessels which we are employing at the present time.

The question of a Ministry of Defence does not arise out of the Motion that was put to you by Admiral Mark Kerr. Captain Lord Curzon replied to it; but as it was not part of the subject for discussion, although no doubt it is intimately related to it, I do not think that it is necessary to take up any time in commenting upon it.

Well, Gentlemen, my opinion, speaking as an outsider, a mere soldier with no knowledge of these naval matters, is that the challenger has not substantiated his case, and that the challenged has a greater weight of argument in support of his attitude. If anybody disagrees with my individual opinion, I am quite willing to put my verdict to a vote of members of the Institution.

ADMIRAL SIR REGINALD TUPPER: Ladies and Gentlemen, I hope that you will join with me in a hearty vote of thanks to Lord Amptill for so eloquently voicing his opinion on the interesting debate we have had, and for so efficiently presiding at this very important meeting.

The Motion was carried by acclamation, and the proceedings terminated.



THE ORIGIN OF THE OVERSEAS NAVAL FORCES, THEIR ORGANISATION, TRAINING AND RELATION TO THE IMPERIAL SERVICES.

By REAR-ADMIRAL SIR E. P. F. G. GRANT, K.C.V.O., C.B.
(Admiral Superintendent, Portsmouth Dockyard).

On Wednesday, 16th January, 1924, at 3 p.m.

ADMIRAL SIR H. F. OLIVER, K.C.B., K.C.M.G., M.V.O., LL.D.,
(Second Sea Lord) in the Chair.

THE CHAIRMAN: My Lords, Ladies and Gentlemen, I have great pleasure in introducing the lecturer, Rear-Admiral Sir Percy Grant. He has served as first naval member on the naval board of the royal Australian navy, in which he has also commanded afloat. He visited Singapore on the occasion of the conference of admirals which was held there with regard to the strategy of the Pacific. Nobody is better qualified than he is to deal with the subject on which he is lecturing this afternoon.

LECTURE.

ADMIRAL SIR HENRY OLIVER, Ladies and Gentlemen,—I think I cannot do better in commencing this lecture than quote the words of a high official to whom I applied for information with regard to a Dominion navy.

He wrote: "The task you are embarking upon in lecturing on dominion navies is a very difficult one, etc., etc."

In view, however, of the statement made by the First Sea Lord in his speech at the Guildhall in November last year, it must be now clear to everyone that the policy of the Admiralty is a whole-hearted support of local navies, and that their lordships will assist by every means in their power the development and progress of these navies. The First Sea Lord's statement was as follows:—"The naval forces of the empire include those provided by the dominions, and it does not require much imagination to look forward to the day when the dominions, as they grow in power and wealth, will not only assist in guarding the sea communications in the vicinity of their own coasts, but will provide a quota of the main fleet, which is the basis of our sea power and which forms the support for the squadrons operating on the distant ocean routes. This envisages the development of

dominion navies, and I wish to make it perfectly clear that the Admiralty are definitely in favour of this policy, and will do all in their power to assist in the development of such naval forces as the Dominions may feel able to create." This is a very clear statement.

I have divided my lecture into three parts, but, as the time available for considering the naval forces of so many dominions is necessarily short, I cannot go into much detail :—

- (1) The first part will deal with the origin of dominion navies.
- (2) The second with their organisation and training.
- (3) And the third part will deal with their futures and their relation to the imperial service.

THE ORIGIN OF DOMINION NAVIES.

The origin of the dominion navies may be said to be the outcome of the growth of the dominions themselves. They felt that the time had come when they could assume responsibility for their own navies, instead of paying a subsidy to the mother country for their naval protection and the protection of their trade.

The protection given by the mother country to the colonies depended principally on the command of the seas, and it has been given ungrudgingly since the colonies were first established.

The security which these colonies felt in this protection had enabled them to work out their own social and economic problems undisturbed, and, in the case of the more important colonies, to grow into great and prosperous dominions.

I do not propose to touch on the Indian marine, as I understand that on 25th March, Admiral Mawbey is giving a lecture on that service, and on its capability to fit into the general scheme of imperial naval defence.

I will now proceed. Under the colonial defence Act of 1865, the colonial governments were empowered to provide and to man vessels of war. Later, the dominions took over the defence of their ports. Australia relieved the mother country of this duty in 1881, so I will take Australia and New Zealand first.

In 1885 a scheme was drawn up by which the Australian colonies and New Zealand hired a force of men-of-war, mainly gunboats and small craft, to be in addition to the Imperial squadron in Australasian waters and to be used for local defence. This scheme was agreed to in 1887, and the Admiralty provided a squadron of five light cruisers and two torpedo gunboats for the protection of the floating trade in those waters.

In return for this protection of trade, an annual contribution of £126,000, including £20,000 from New Zealand, was paid by Australia and New Zealand. This agreement was to last for ten years.

In 1901 the commonwealth of Australia was formed, and the largest plank at that time in the platform of federalisation was "defence,"

In consequence of this, the Federal government took over the naval forces of the different states.

In 1902-3 the agreement was revised, the commonwealth contributing £200,000 and New Zealand £40,000 a year towards an improved Australian squadron, plus the establishment of branches of the royal naval reserve.

In 1905, and again in 1907, the Premier of the Commonwealth proposed to amend the agreement of 1903, stating that it was not popular, as Australian responsibility was fixed on a monetary standard.

In 1909, the idea of dominions laying a foundation upon which a future navy of their own could be raised, was mooted, and the Admiralty suggested the creation of fleet units, consisting of a battle cruiser, three protected cruisers, six torpedo-boat destroyers, and three submarines.

A conference, with representatives from Australia and New Zealand, resulted in a provisional agreement for the creation of an Eastern fleet of the empire, and Australia agreed to construct a fleet unit, and New Zealand to increase her contribution from £40,000 to £100,000 per annum.

The Australian unit was to be constructed and maintained by the federal government, assisted by the imperial government, the annual cost to be about £750,000 a year, which should be disbursed by the Commonwealth, except that the imperial government should assist the federal government by a contribution of £250,000, until the latter could take over the whole cost. The annual subsidy of £200,000 was to be paid until the existing imperial Australian squadron was relieved by the new Australian fleet unit.

In 1911 the Australian government decided not to ask for any contribution from the imperial government towards the maintenance of the Australian fleet unit, which was instituted in due course, and the battle cruiser, cruisers and destroyers, etc., were laid down at the cost of the commonwealth government, who, however, went beyond the proposal of 1909 and contemplated a future Australian fleet. This is an interesting point.

At the end of 1910, Admiral Sir Reginald Henderson, at the request of the commonwealth government, went out to Australia to advise that government with regard to this new idea.

The main points, and these also are important, upon which he was asked to advise, were:—

- (a) The best position for the central naval base, and the works necessary to make this effective; and
- (b) The positions for secondary bases for the service of a *fleet*, and what should be done to make them of most use in any Naval operations.

Admiral Henderson made a very full report for the building up of an Australian fleet.

He impressed on the commonwealth government, however, that the mere possession of ships did not make a navy, and made recommendations

as to the essentials for its maintenance—such as control and administration, *personnel*, training, naval bases, reserves, stores, ammunition, etc.

He estimated that the provision Australia should make for the fleet was then (1910) £4,000,000 per annum, increasing in after years proportionately to the increase of population.

Unfortunately the population of Australia has not increased as fast as one would wish, especially in regard to migration. According to *Whittaker* (1923) oversea arrivals were 87,938, oversea *departures* were 72,149.

To sum up Admiral Henderson's proposal, his suggested fleet in 1933 was to consist of eight battle cruisers, ten protected cruisers, eighteen T.B.D.s, twelve submarines, three depôt ships and one repair ship, the grand total of all ranks and ratings being 3,521—a rather ambitious scheme. A large number of the recommendations in his report were adopted, but never actually received the approval of the commonwealth parliament.

In 1910 the "Yarra" and "Parramatta," the advance guard of the fleet unit, arrived in Australia, and there were great rejoicings and all sorts of speeches made to the future of the Australian fleet.

In 1913 the "Australia," the "Sydney," and the "Melbourne" arrived. These ships were mainly officered and manned by officers and men from the royal navy.

The Australian fleet now became a fleet in being.

On the outbreak of the war, the Australian unit, under the command of Admiral Sir George Patey, was placed at the disposal of the British Admiralty and did useful work in the Pacific and the North Sea. The majority of Australians are convinced that it was the presence in those waters of the battle cruiser "Australia" which prevented Australia from being attacked by the "Scharnhorst" and "Gneisenau" and the German China Squadron, and there is no doubt that the presence of this battle cruiser in those seas had its effect on the plans of Count von Spee, the German commander-in-chief.

In November, 1914, it may be remembered, the "Sydney," under the command of Captain (now Rear-Admiral) Glossop, destroyed the "Emden" off the Cocos Islands. It is needless, I feel sure, for me to remind you of the effect on trade of this success in the Indian Ocean.

After the war, Australia was presented by the British Government with six destroyers and six submarines. This gift was, of course, exceptional, consequent on the commonwealth's sacrifices in the war and the plethora of available warships in this country.

In 1919, at the invitation of the dominion governments, Admiral of the fleet Viscount Jellicoe visited the dominions and made a full and comprehensive report on dominion navies.

His grasp of the situation in the far East has been invaluable in enabling various conclusions to be arrived at with regard to those waters. The recommendations which he proposed, and the advice which he tendered,

could be carried out in whole, or in *part*, as circumstances permitted (and this is very important), for, though he continually asked that he might be informed of the financial considerations which should govern any proposals he might make, I believe I am correct in saying he never received this information. The necessity for economy prevented, in the end, the whole of his recommendations from being carried out, but many of his proposals were adopted, especially the most important one.

In 1920, H.R.H. the Prince of Wales visited Australia, and reviewed the fleet assembled to greet him in Hobson's bay, Melbourne. The fleet was composed of the battle cruiser "Australia"; light cruisers "Melbourne," "Sydney," "Brisbane" and "Encounter"; twelve destroyers, six submarines, three sloops, one submarine parent ship, the naval board yacht "Una," and three auxiliaries—a very imposing fleet. The authorities were able to man them fully by closing down the gunnery and torpedo schools, etc., the *personnel* numbering over five thousand.

I think that everyone present was much impressed by Australia's display of naval force at this review, the naval estimates at the time (1920-1921) were approximately three and a half millions.

After the review, however, despite the feeling of security that this naval force gave to Australia, and the illustration of sea power provided in the late war by the battle cruiser "Australia" in those waters, the cry for economy in defence was very strong. It was pointed out that Great Britain was cutting down her navy, and that Australia should do likewise. It was explained that Great Britain's reductions were due to the fact that the British fleet had swollen during the war out of all proportion to the needs of the nation, and that, therefore, under ordinary circumstances, it must be reduced. On the other hand, Australia's fleet was expanding on a more or less fixed policy for a young and growing navy, and consequently the two cases were not parallel.

Further, it was pointed out that, though some reorganisation might be effected to bring the Australian fleet up-to-date and might in the end prove economical, if such a young navy were to be badly cut, it would be difficult to build up again, and the *personnel* would be disheartened, as they would view the future with apprehension. These and other reasons were advanced to prevent, if possible, a serious "cut." However, finances were straightened owing to the Government's having to find money for various matters in connection with the late war, and social reforms; internal matters generally were considered more pressing, and, in the end, naval protection had to give way to the financial needs of the moment, and the navy was cut down by approximately one-third, the Estimates being now reduced to two and a half millions.

The following is the present strength of the Australian fleet :—

In full commission	-	3	cruisers ("Melbourne" class),
		2	destroyers,
		1	parent ship,
		1	surveying sloop.

With nucleus crews - 1 destroyer and the "Cerebus" gunboats,
tenders to G. and T. schools.
Paid off with C. & M. 1 cruiser ("Sydney"),
parties. 2 sloops,
9 destroyers.
Paid off, waiting dis- 1 battle cruiser ("Australia"),
posal. 6 submarines.

The "Australia" was scrapped, owing to the decision given at the Washington Conference.

All the above ships are getting somewhat out of date, though the "Adelaide" has only recently been completed, and no ships have been laid down to take their place. I do not know, however, what will be the outcome of the Imperial conference held last year.

Royal Naval officers and men are relieved when possible by Australian ranks and ratings, but there are still a large number of officers and men of the Royal Navy serving in the Australian unit.

NEW ZEALAND.

Now I will pass on to New Zealand. The early part of the naval history of New Zealand is to a certain extent bound up with that of Australia, but in addition to what I have already told you about New Zealand, I must add that in 1909 she offered a first class Battleship to the British Admiralty, and, in consequence of this, the battle cruiser "New Zealand" was built at her expense. This vessel cost £1,697,000, and it was agreed that she should be the flagship of the China unit of the Eastern fleet. The contribution of £100,000, which I have mentioned before, was in addition, and continued until 1913, when the Dominion government decided to spend a certain amount of the £100,000 on local defence, the balance, if any, being handed to the British government. No payments have been made since that for 1913-1914.

In 1912, New Zealand agreed to the battle cruiser of that name being stationed where her services might be required.

In 1913, as a result of a visit of New Zealand's Minister of Defence, a further agreement was made for the organisation of a New Zealand naval force, but shortly afterwards the war broke out.

After the war, the "Chatham" was lent to New Zealand, and she maintains that ship at her own expense. The *personnel* of the ships are at present mainly Royal Navy ranks and ratings, but they are being relieved by New Zealanders when trained; 106 of the latter are now serving.

The present position of the New Zealand unit is as follows:—

1 light cruiser, "Chatham" (sea-going); 1 training ship, "Philomel" (stationary). In addition there are two sloops, "Veronica" and "Laburnum," stationed in these waters, but these ships are maintained by and under the orders of the British Admiralty.

New Zealand, it is stated, is subscribing to the cost of the Singapore base.

The "Chatham," by arrangement with the New Zealand government, is being relieved by the "Dunedin," a modern light cruiser.

CANADA.

No payment has been made by the Dominion of Canada towards the cost of the Imperial navy as a whole, but a repayment of £7,000 a year was made during the years 1894-95 to 1899-00, on account of the maintenance of a detachment of Royal Marines at Esquimalt.

As a result of the Imperial conference in 1909, Canada determined to have a naval service of her own, and a bill was introduced into the Canadian parliament with this in view. The bill was to create a naval department, with a minister, deputy minister and director and naval board to administer it.

Two cruisers, the "Niobe" and "Rainbow," were purchased from the Admiralty for training purposes and were manned by the Royal Navy and maintained by Canada. Recruiting at once started, the recruits being drafted to these ships for training. At the same time, a naval college was established at Halifax.

Halifax dockyard had been taken over by Canada prior to this, (viz., in 1906), and Esquimalt yard was taken over in 1910. Proposals were also put forward in 1910 and passed through the House for a fleet unit consisting of four light cruisers and six destroyers. This unit never materialised.

On the outbreak of war, the Canadian ships were placed at the disposal of the Admiralty.

Two submarines were also purchased and employed on patrol duties on the coast, and, in addition, large numbers of merchant ships were taken up for patrol duties in Canadian waters.

Towards the end of 1914 a Royal Canadian Volunteer Reserve was formed, the recruits being trained principally in England. This force was demobilised in 1921.

In 1922 it was announced that a new Volunteer Reserve Force was to be established.

In 1920 the "Niobe" and "Rainbow" were disposed of, and the light cruiser "Aurora," two destroyers of the "M" Class, and two "H" submarines were presented to Canada by the Admiralty.

Owing to the necessity, however, for economy, "the "Aurora" and the submarines were paid off into the Reserve in 1922.

The position with regard to the naval service is now as follows:—

One destroyer and one mine-	
sweeping trawler	- - on each coast for training duties,
Depôt ships -	- - at Halifax and at Esquimalt,
"Aurora" and submarines -	paid off.

SOUTH AFRICA.

In 1898 the Cape of Good Hope contributed £30,000 a year towards the cost of maintaining the Imperial navy, without conditions.

In 1902 the contribution was increased to £50,000, similarly without conditions, and Natal contributed £35,000, also without conditions.

In 1908 the Cape of Good Hope proposed to establish a R.N.V.R. for service in the Royal Navy, costing about £4,000 a year, this sum to come out of the £50,000.

The Union of South Africa Defence Act of 1912 provided for the organisation of a body of naval volunteers for general service in the Royal Navy, under the designation of the South African Division of the R.N.V.R., this division to be maintained at the expense of the Union.

Up to 1921, the Union of South Africa contributed £85,000 to the Imperial navy and maintained three companies of R.N.V.R., costing £15,000. At the 1921 conference it was arranged to give two trawlers, now named "Immortelle" and "Sonneblom," and a surveying vessel "Protea," to South Africa, the cost to be borne by her; but as she is undertaking her mine-sweeping organisation, and is intending to increase the number of R.N.V.R. companies to seven, the contribution of £85,000 to the Imperial navy has now lapsed as from the financial year 1922-23 onwards. In 1923 the charge to the Union government for the navy was £71,949 and this included improvements to Simonstown dockyard and erection of oil tanks.

NEWFOUNDLAND.

Newfoundland paid a contribution of £3,000 annually from 1902 onwards, in respect of the maintenance of a branch of the R.N.R. This branch was composed of seamen and qualified seamen; and these were recruited principally from the fishing population. They numbered 600, and during the war were employed in the 10th Cruiser Squadron and small vessels and also in the Newfoundland local patrol service. The Newfoundlanders are splendid seamen and did excellent service during the war.

No payment has been received since 1919-1920 from Newfoundland, and the Reserve has ceased to exist.

At the end of the war, in 1920, a sloop was presented to the Newfoundland government. She has not been commissioned, however, and is laid up at St. John's.

MALAY STATES.

The Malay States bore the first cost of the battleship "Malaya" to the extent of £2,847,000; it is stated that they will be financially responsible for the cost of the land on which the new Singapore base is to be established.

CEYLON.

Ceylon made a contribution in aid of naval expenditure, ranging from £4,500 to £6,000 a year in 1887-88, 1889-91, but nothing subsequently.

ULSTER.

Ulster is negotiating for a drill ship for training R.N.V.R.s, and, it is understood, will pay the cost of maintenance and upkeep of the ship.

IRISH FREE STATE AND CROWN COLONIES.

So far the Irish Free State and the Crown colonies do not contribute to the Imperial service.

When the Free State was formed, as one of the conditions, the Admiralty claimed certain rights with regard to particular harbours, and these have been conceded.

Now we come to the—

ORGANISATION AND TRAINING OF THE VARIOUS UNITS.

AUSTRALIA.—The Naval forces of the Commonwealth are administered by a naval board. Up to the year 1921 there was a separate Minister for the navy, but in 1922, the navy, the army and the air force were brought under the Minister for Defence, and the members of the board reduced in number.

The naval board now consists of:—The Minister for Defence (President); First naval member and Chief of the naval staff (must be a flag officer); Second naval member (now a captain, R.A.N.); Finance member; secretary (not a member of the board).

The naval board of Australia was constituted at the inception of the Force in 1912, on the lines laid down by Admiral Henderson's report. It was, however, discovered in 1919, that the board had really no legal standing given it by the Federal parliament.

Under the circumstances, the Prime Minister appointed the then 1st Naval Member and the Solicitor-General, to draw up a proper constitution. This was no easy task, and took about nine months before it was accomplished and the constitution finally received the approval of the Governor-General in Council. It became law in October, 1920.

A little earlier than this, in April, 1920, a Board flag similar to the Admiralty flag, except that it is red and blue horizontally instead of all red, was approved by H.M. the King. The flag was to be flown when the Board was afloat and under conditions similar to the Admiralty flag, and was to be saluted with fifteen guns. It was flown for the first time at the review of the fleet by the Prince of Wales in Hobson's Bay.

The constitution was modelled on the Admiralty constitution, but there are some important differences. Perhaps the most important is that there is no finance committee of the Navy office. The Board, after Parliament has passed the estimates, are responsible for the allocation of all funds in connection with the various votes. The money voted, however, may not be taken from one vote and spent on another without Treasury sanction. The financial committee, or what would correspond to one, are merely an accounting committee;

they watch the expenditure and inform the Board every month, or as occasion demands, how much money has been expended on each vote. They have no control whatever with regard to the expenditure or the allocation of funds. This method was very exacting on the Board, and entailed a large number of Board meetings, but it had the great merit that the entire financial control of the service (except the transfer of money from one vote to another) remained in the hands of the Board after the estimates had been passed by Parliament, and it worked remarkably well.

The functions of the various members of the Board are almost identical with those of the Board of Admiralty, excepting that, owing to there being fewer members, the work is more distributed.

In addition to the members of the Board, there are Directors of intelligence, operations and plans, naval ordnance and torpedoes, victualling, accounts, medical services, naval reserves and mobilisation.

A Naval Staff Committee was established, consisting of the Chief of the Naval Staff, Second Naval Member, Director of Operations and Plans, Director of Naval Intelligence, Director of Naval Ordnance, and Air Service Adviser. The Private Secretary to the First Naval Member was the secretary of this Committee.

The official procedure and rules for the various departments, including the secretariat, were carefully drawn up and printed.

The discipline of the service is governed by the Naval Defence Act of 1910-1918 and the King's regulations and Admiralty instructions.

There are no pensions, but there is a system of deferred pay. By this system, a man after he has served seven years, receives a lump sum, and the remainder after he has served twelve years; (the twelve years' service was brought in in 1920). As the conditions which prevail in Australia are very different from those in England, this system is not conducive to men remaining on in the Service, and one of the results is the difficulty experienced in persuading the men to pass for petty officers. A superannuation scheme has lately been adopted for the Civil Service clerks employed in the Navy Office.

The Commodore commanding the fleet is responsible to the Board for the efficiency of the sea-going fleet.

The following establishments are maintained :—

A naval depôt at Western port, about 40 miles from Melbourne, with accommodation for about 850 men, and room for expansion as required.

A naval college at Jervis bay.

At Sydney, which is the great naval base in Australia, there is a repair yard (at Garden Island), a victualling yard, and an armament supply depôt. The depôt and Naval College are commanded by naval captains, who are directly responsible to the Board. There is also a Captain-in-Charge of all establishments, who also has the title of Senior Naval Officer; he is responsible directly to the Board for his establishments and the ships in reserve.

At Sydney also there is a dockyard at Cockatoo island, which is a government concern, but is not under the navy. There is a rumour that Garden island is to be shut down, and that all naval work is to be carried out at Cockatoo island. In view of the secret and confidential work that must be carried on by the Service, and the necessity of close supervision by Naval officers, this innovation cannot, I feel sure, be regarded with any satisfaction by the naval authorities.

Another great naval base was being established at Cockburn sound on the west coast of Australia, but is now closed down. A base on the south-west coast is, however, a necessity for Australia, principally on account of the trade, and must be considered sooner or later.

At Port Philip, Melbourne, a mine depôt is established, and at Geelong a submarine depôt has also been formed, but now the submarines are laid up. Reserves of oil and coal are stored at Melbourne and Sydney. There is a great deal of coal mined in Australia, but, unfortunately, it is of little use for naval purposes. A certain amount of shale oil is produced yearly, but the amounts are inappreciable.

Training.—The Captain of the depôt is also Superintendent of Training. The depôt is well equipped for training, and gunnery, torpedo, signals, wireless, mechanical, physical, stokers' and cooks' training all take place at Western port. Seamen can be trained in Australia for all except the higher ratings, such as gunner's mate, &c.; to go through these courses men have to be sent home to England. The battle cruiser "Australia," before she was scrapped, was the gunnery training ship and turret drill ship at Western port, and a certain amount of torpedo training was also carried out on board her. A destroyer is now stationed as a tender to the Depôt. Short courses for officers are also given at Western port. The training ship "Tingira" for boys is stationed at Sydney and comes under the orders of the Superintendent of Training. The boys are entered as in the Royal Navy and do a year's harbour training, and then go to sea for six months in a sea-going cruiser before being drafted to a fully-commissioned sea-going ship.

The naval college at Jervis Bay was modelled on the colleges at Osborne and Dartmouth. It is an excellent institution and very well run, and has turned out some very good young officers.

The Australian cadet, unlike his British brother, has everything paid for him after he enters. He remains there for four years and goes to a sea-going training ship for six months before he is sent to a fully-commissioned sea-going ship, which may be either an R.N. or R.A.N. ship. After passing for sub-lieutenant, he goes to Greenwich, and takes the same courses as our sub-lieutenants; lieutenants specialising in navigation, gunnery, or torpedo go through their courses in England with our own officers.

Owing to the reduction of the fleet, the entries at Jervis Bay have had to be very much curtailed, with the result that the cost of each cadet to the government is prohibitive, and there is a talk of the college being closed down. It will be a great pity if this has to be done, as a

great deal of thought, energy and trouble has been expended on it by many Royal Naval officers, and their efforts have placed it in the high position it occupies to-day in Australia as a training establishment. The excellent training the Cadets receive there is proved by the successful manner in which they pass the examinations for sub-lieutenant and lieutenants (T) and (G) in this country.

R.A.N.R. : Compulsory Service.—All youths in Australia are liable to compulsory service between the ages of 16 and 24, and the navy has the first pick. The number of hours' drill and the number of days' training varies with the age, and is also being continually altered to accord with financial provision.

There are R.A.N.R. divisions at Melbourne, Sydney, Newcastle, Brisbane, Freemantle, Hobart, Launceston and Adelaide. Each district is to be given a torpedo boat destroyer. The men will be employed during war to mobilise the ships in reserve, and the defensively-armed merchant ships; they will further be used for local defence, and for the relief of men in shore establishments. All descriptions of R.A.N.R. are trained, the selection of rating being governed by the civilian occupation.

An attempt was made in 1921 to enrol all yachtsmen in Australia into a R.A.N.V.R. force; there are about 5,000 in Melbourne alone; they come from every profession and trade, and are a magnificent body of men, and very good seamen. The movement, I regret to say, though it augured well at its inception, has not materialised, and very few yachtsmen have been enrolled.

Arrangements are being made for R.A.N. ships to change with R.N. ships in various squadrons, so that the officers and men of the R.A.N. ships may gain experience of fleet work in large squadrons.

Air Force, Australia.—The air force is controlled, as far as policy is concerned, by a council consisting of the Minister of Defence, the Chief of the Naval Staff, the Chief of the General Staff, the Head of Civil Aviation, co-opted as necessary, and a Secretary.

Under the Council is a Board for administering the naval and military wing, composed of naval and military flying officers.

A new air defence is, however, to be inaugurated, which will probably alter the present organisation. I understand that it is proposed to combine the naval, military and civil air services.

There is one air station already in existence, at Point Cook, near Melbourne.

NEW ZEALAND.—The headquarters of the New Zealand naval force is the Navy Office, Wellington.

The naval board consists of :—President, the Minister of Defence; First Naval Member, the Commodore Commanding Squadron; Second Naval Member, Chief Staff Officer to Commodore; and a naval secretary (not a member of the Board).

The light cruiser "Chatham" and the training ship "Philomel" are maintained entirely by the New Zealand Government, and at Auckland a base is being developed for refitting and storing, and provision made for reserves of oil, &c. The Dominion government have also taken over the subsidy of £5,000 a year which was paid by the British Government to the Auckland harbour Board for the use of their dock and workshops when required for H.M. ships.

Oil has not yet been discovered in New Zealand in any appreciable amount, but the coal mined at West port is the best in Australasia for naval purposes.

Training.—Recruiting for the navy commenced in New Zealand in 1921, and up to the present a total of 225 have been recruited. The harbour training of these recruits, both stokers and seamen, takes place in the "Philomel," and the sea-training in the "Chatham"; seamen, one year; stokers, five months. Boys and young men who enter as stokers, serve for twelve years. There is a system of deferred pay in lieu of pensions, similar to that in the Australian Navy. There is some talk of New Zealand officers being sent to Jervis Bay College, if that establishment continues; at present, beyond a few civil officers, no officers have been entered.

A New Zealand royal naval Reserve was established in 1922, but so far very few have enrolled. New Zealand has no air force at present, nor is there any intention of creating a separate one; but there is an organisation established with a view to commencing an Air Force as wings of the Navy and Army. Civil aviation is encouraged, and there is an Advisory Board in being, consisting of naval and military officers.

CANADA.—The Department of National Defence, Ottawa, is the headquarters of the Canadian naval forces.

The Minister of National Defence is the Parliamentary head of the naval service, and there is also a Deputy Minister. The naval force is administered by a Director of Naval Service, assisted by a staff officer, a naval secretary, a consulting naval engineer, a chief accountant and a director of stores.

Owing to the necessity for retrenchment, the naval estimates of the Dominion 1922-23 were 1,500,000 dollars, or approximately £300,000. The naval policy adopted was to maintain the best possible force with the money available, and it was considered that the best manner in which this money could be expended was to have a small permanent force, a comparatively large naval reserve, and a naval volunteer force. This would ensure a fair number of trained officers and men being immediately available, and also, by drawing upon the inland population for the naval volunteer reserve, it would educate the people in the interior to some extent as to the value of a naval service.

Further, one of the primary necessities of a naval defence would be provided, viz., the defence of convoy assembly ports and mercantile trade bases, which would be essential for the security of trade.

The establishments maintained are a naval dépôt, barracks and training establishment at Halifax, and a training establishment and store dépôt at Esquimalt. These dépôts and the repair bases at Halifax and Esquimalt are kept in good order by a nucleus organisation, which is capable of expansion.

Training.—The authorised strength of the *personnel* is 400 officers and men of the permanent force, 500 officers and men of the Royal Canadian naval reserve, and 1,000 officers and men of the Royal Canadian naval volunteer reserve. The conditions of entry and qualifications for the permanent force are the same as for the Royal Navy, but the period of service is for seven years only.

The initial training is carried out both in naval barracks and on board destroyers and mine-sweepers and also in the ships of the North American Squadron, by the permission of the commander-in-chief.

Canadian officers immediately on entry proceed to England and are appointed to ships of the Royal Navy, remaining there continuously until they become sub-lieutenants; but, after attaining that rank, they are employed alternately in R.N. and R.C.N. appointments. Their whole outlook as naval officers is thus in conformity with British methods and tradition. The ratings in all branches are also sent for training in non-substantive ratings to naval establishments in England. The training of the reserve and volunteer reserve is carried out in Canada on the same lines as in England.

Air Service.—There is no air force in Canada attached to the navy. Aviation carried out there at present is mainly survey work.

SOUTH AFRICA.—Organisation and Training.—The South African naval forces, which are maintained by the Union government and consist of a surveying vessel and two mine-sweepers, are under the Naval commander-in-chief of the station for discipline and training, but are administered by the Minister of Defence for supplies, &c.

The training ship "General Botha" was presented to South Africa by Mr. T. B. Davis. She is partly financed by the government. She is governed by a Board of Control consisting of the Prime Minister, Minister of Finance, Minister of Industries and Commander-in-Chief African Station; also the Navy League. The donor and several cadet corps are represented.

The ship trains 75 boys, who are entered for two years. The Admiralty have agreed to take 20 of these boys into H.M. service. The remainder will, it is expected, enter the South African naval forces and merchant services. In addition, the Admiralty have also agreed to take four as naval cadets, these being selected in the same manner as cadets who enter from the "Conway." The boys selected are sent to England to go through the various courses; after they have completed their training, the Union hopes that it may be found possible to employ them on the African station.

The R.N.V.R. are divided into a general section and a mine-sweeping

section. They carry out 40 days' training in the first year, and 24 each succeeding year. They are intended to man local mine-sweepers, armed escort vessels, patrol vessels, &c.

NEWFOUNDLAND.—Newfoundland used to train a naval reserve. The training ship "Briton" was, however, sold in 1922, and the reserve has ceased to exist; it is hoped that it may be revived, as the Newfoundlanders are fine seamen.

Now we come to the third part of my lecture, viz. :—

THE RELATION OF DOMINION NAVIES TO THE IMPERIAL SERVICE.

This I have taken to include their future.

I will first deal with the relation of dominion navies to the imperial service; their future is so full of complexities that I will leave it to the last.

The dominions hold themselves responsible for local defence. Australia, New Zealand, Canada, South Africa also maintain certain sea-going forces. In addition to those maintained by these Dominions in the waters adjacent to their coasts, Great Britain maintains a squadron in North America and the West Indies, another on the Cape station, and two sloops in New Zealand waters.

It will be of interest to compare how much each of these dominions pays *per capita* for the defence of the empire and protection of trade, taking also into consideration each country's revenue :—

—	Defence- Expenditure to Revenue.	Total <i>per capita</i> , for Defence.	Total <i>per capita</i> , for Navy alone.
	%	s. d.	s. d.
Australia	7.95	17 6	9 3½
New Zealand	28.4	12 1	4 6
South Africa	11.9	11 10	0 11
Canada	6.6	6 8	1 2
Great Britain	15	58 4	27 5
Crown Colonies	—	—	Nil

Now, the taxation in these dominions and colonies is nothing like so high as it is in England, and though it is realised that, owing to developments which must necessarily take place in new countries, it may not be altogether reasonable for them to take their share of the burden of empire defence, yet it is sincerely to be hoped that the result of the Imperial Conference will bear good fruit in this respect.

The conditions under which the various dominion naval units came under the Admiralty at the outbreak of war are interesting and vary

considerably. New Zealand's unit comes automatically under the Admiralty. The South African unit, so far, is always under the commander-in-chief, African station. Australia and Canada, however, have reserved to themselves the right to hand over their squadrons or not, as their parliaments decide.

Communications.—The method of communication between the various naval boards and authorities, except for some routine matters, has to be carried out in peace time through the Colonial Office and Governors-General, or the Prime Ministers' departments. In war, the Boards communicate directly with one another after the fleets have been handed over to the British Admiralty. The peace method is not deserving of recommendation, as it leads to delay and to restriction of close naval co-operation.

If, however, the British navy and the Dominion navies are to work together for the common good of the empire and the protection of its trade, it is vital for all of them to maintain the closest relationship, and I would sum up as follows the recommendations to achieve this purpose—

- (a) Interchange of ships.
- (b) Interchange of *personnel*.
- (c) Interchange of naval staffs.
- (d) Direct intercommunication between naval staffs in peace time.

And, in addition,

- (e) Development of all available resources in the dominions that will assist in this object.

Lastly, we come to the future of these Dominion navies. He would be a brave man who would prophesy concerning their future, as the situation with regard to them is so complex; I would like, however, to mention a statement made by Lord Kitchener whilst in Australia.

Lord Kitchener said :—

"It is an axiom held by the British Government that the empire's existence depends primarily upon the maintenance of *adequate* and *efficient* naval forces. So long as this condition is fulfilled, and as long as British superiority at sea is assured, then it is an accepted principle that no British dominion can be successfully and permanently conquered by an organised invasion from overseas."

Now, with regard to Australia. One is accustomed to think of Australia as a vast continent, but in reality Australia may be regarded as a group of islands at present. My reason for saying this is as follows : The population of Australia is mostly in the towns. The principal towns are all on the seaboard, and owing to the difference in gauge of the railways, which prohibits a large proportion of the inter-state trade

coming over the rails on account of the expense of so much handling, practically everything comes into these towns by sea.

Further, there is no connected railway system from Geraldton, north about to Gladstone, and the coast line of Australia is some 12,000 miles, and the towns are also very far apart.

In addition to these drawbacks, various vital parts of rolling stock, and also stores and munitions, and nearly all the necessities for carrying out a war (should we be unfortunate enough to be involved in another in the near future) come overseas.

The export trade of this Dominion likewise has to find markets in remote countries, and a very large proportion of the inter-State trade, as already stated, is also sea-borne, and all this trade must be protected.

Reviewing all these facts it would appear that Australia is absolutely dependent on the command of the sea being maintained, and consequently an efficient Naval Force in these waters is essential.

The same remarks apply, in a great measure, to New Zealand, and to a certain extent, and as far as the protection of trade is concerned, to Canada and to South Africa, and it must be remembered that the protection of trade is the all-important factor in a great war. In connection with this I would like to remind those who are present that it is an indisputable fact that as long as the trade of the world is carried in sea craft and not in air craft, the trade must be principally protected by sea craft, otherwise the ships will be sunk and the trade lost. The overseas export trade of the Dominions last year was :—

Australia	...	...	...	...	£ 130,000,000
Canada	...	...	...	...	260,000,000
South Africa	...	...	...	...	87,000,000
New Zealand	...	...	...	...	46,000,000

The future of these Navies also depends largely on foreign policy. It may not be generally known that Dominions sometimes have a foreign policy—or perhaps some people may call it a domestic policy—of their own, which has never been agreed to by Great Britain; but the time may come when this policy may be required to be backed up with all the Empire's force. Consequently, I think it is as well to remember that any such policy that is initiated very largely depends on the force available to back it up.

Under all these varying circumstances, and in order that the future of these Dominion Navies may be assured as *efficient* units for the protection of the Empire and its trade, what appear to me to be most urgent are the following four essentials :—

Firstly.—Propaganda to bring home to the sister nations the vital necessity of a strong Navy for the protection of the British Empire and its trade. This may be carried out in various ways, lecturing in the towns, teaching in the schools, healthy criticisms in the Press of the Naval

situation, encouraging the fishing industry so that that part of the population may be trained to the sea, etc.

Secondly.—A general Imperial Naval Policy which would define what is considered the minimum requirements for each Dominion in order to maintain security of the Empire and its trade.

Thirdly.—An agreed Naval Policy, if possible, between all political parties, in each Dominion, to carry out the Imperial Policy referred to before, so that the expense may be spread over a considerable period, and the goal aimed at firmly secured. The haphazard manner of providing for the Navy now in force in most of the Dominions is suicidal.

In addition to the inevitable waste of money due to a continued change of policy, the officers and men of those Navies become disheartened with the consequent deplorable effects on the Service, as there is no assured career ahead for them. Further, a weak inefficient Unit is a danger and not a help, as measures may have to be taken to protect it in time of war which may be disastrous to any plan.

Finally.—It is essential that all the Naval Forces of the Empire should, on the outbreak of war, conform to a common plan previously agreed upon, until such time as the Dominion Governments may place their forces directly under the Admiralty.

Another point for consideration with regard to this matter is that should these local Navies grow and capital ships be included therein in the future (and it must be borne in mind that a capital ship was only recently included in the Australian Unit), then these capital ships will form an integral part of the one-Power standard which has been accepted by the Government. If these ships cannot definitely be included in the scheme of defence it will place Great Britain at a great disadvantage as compared with other great Naval Powers, as it would reduce the British Navy below the One Power Standard.

In conclusion, I would like to thank very sincerely all those who have so kindly assisted me with information.

And also you, ladies and gentlemen, who have listened so patiently to a rather long lecture.

DISCUSSION.

VICE-ADMIRAL SIR WILLIAM GOODENOUGH: We have listened to a most interesting and comprehensive lecture. What we have particularly to thank the lecturer for is the lucid and clear way in which he has put before us many things of which hitherto many of us have had but a vague and therefore dangerous knowledge. At the end he has named the four essentials of the subject, and there is really very little more to be said, except to emphasise them. What is required is unity of purpose at all times, and unity of command in war time. It is quite easy to understand that the man who lives in the back blocks of Australia, or the farmer who lives on the land in Canada, cannot see, without teaching, why he should be better protected by a concentrated force as near as possible to wherever the storm is likely to arise, than by having something at which he

can look if he goes down to his coast; whereas we know, of course, that wherever the centre of the storm is (and up to the present it has been in European waters) there is where the force must be. If we take the Singapore project, for instance, it is quite easy for an Australian to understand that he will be well protected from any aggression which might come about by having a base at Singapore, but it is much less easy for a Dutch farmer in the Transvaal to understand that. One of the chief privileges of our profession is to carry from the mother country to the dominions that imperial spirit which will go towards educating the people both on the coasts and in the interior of our dominions up to the fact that the protection of the channels on the high seas is just as vital to them for the safety of their farms, as is the protection of the high roads on their land. In such a cruise as is going on now it is to be regretted that time does not allow of naval people going inland. It is a curious thing, but none the less a fact, that the sea-sense has largely left the peoples whose only communication with the mother country and other countries is by the sea. If I take South Africa as an instance, it is because circumstances have made me familiar with that part of the empire. The sea-sense of both the Dutch and the English out there is dormant. The reason of it is this. On their getting to South Africa in years gone by, they found themselves entirely protected by the country from which they came. The strategic point at the Cape was so valuable that they knew perfectly well that they need not pay attention to any naval defence, and their minds, from a military point of view, were entirely turned towards native aggression and their desire to go further into the country. It is only quite recently, in that country at any rate, that the sea-sense seems to be reviving. There are no white fishermen at all; there is very little yachting, and in fact there is very little sea-sense of any kind. They have instituted the training ship, the "General Botha," in which a few boys are being trained. At present they are indulging in the not unusual way of gaining experience by digging pits and falling into them and being helped out. They will, however, get on very well, especially if they pay attention to the helping hand of whoever is the naval commander-in-chief at the moment. The sea-sense is dormant. Perhaps it is not to be wondered at when we find that there is not any great rush in our country of men to become candidates, at any rate as officers for our own navy.

That is all I have to say, except to repeat that the lecture is so comprehensive that one can hardly comment upon it; but I am sure we shall all congratulate the lecturer on his most instructive and excellent address.

ADMIRAL OF THE FLEET SIR DOVETON STURDEE: Mr. Chairman, my Lords. Ladies and Gentlemen, I should like to support the remarks of Admiral Goodenough in thanking the lecturer for the able and clear way in which he has dealt with the subject. As I listened to this lecture I felt somewhat depressed to learn that, although the Dominions at one time desired to institute their own navies, the political element entered into the situation and modified their plans to such a very great extent. After all, it is only a repetition of what we see in the mother country. We have just had a general election. I read a great number of speeches made during the course of that Election, but I did not see any that dealt with the defence of the Empire, excepting those which advanced arguments against the furtherance of the Singapore project.

Occasionally we find admirals deprecating battleships and naval bases like Singapore. One distinguished admiral, who is well known, said at the Australian Native Association, that it was a pure waste of money to vote estimates for building battleships and establishing the Singapore base. Under these circum-

stances, naturally, the politician in Australia will not vote money. Until war is very close upon us, nobody cares about the army or navy, because there are no votes to be obtained, unless you propose increasing the pay of the officers and men.

When I look at the empire it seems to me very much like the human body. It has a heart, which is England, and where all the naval material has to come from at present. It has arteries and limbs. As it grows up from babyhood to childhood, and from childhood to manhood, one does expect the limbs to protect themselves—the limbs being the dominions. Otherwise, the day will arrive when there will be a very cold wind, and the limbs will get frostbitten and may have to be severed from the body. It is only ordinary commonsense that the arteries of the empire must be protected if the empire is going to be maintained as a whole. Air forces and such things may be introduced, but sea-power must remain. The surface ship carries troops and food, and there must be a sea-force to defend the trade. It is hardly fair to request the heart to do the whole thing. I thought it was rather pathetic to hear the small amount which each Dominion contributes towards our sea-force. England, besides being the heart of the Empire, is alongside other Powers in Europe which—due to the advance of civilisation, of which we are so proud—instead of attacking the armed forces of their enemies, now bombard towns, sink ships, and burn and destroy women and children behind the lines. I hope we are all proud of our twentieth-century civilisation! England having reduced its army and navy, now finds itself threatened by attack from the air; it, therefore, has to raise an air force, besides supplying an army and navy. At the same time we see the dominions reducing their navies, and, due to their position, are not threatened from the air. Nevertheless, armies have to be carried by ships, although it is sometimes said that the sea force is of no further use. It is rather humorous to think of, that aircraft has to be carried by ships, but that is the situation. The heart of this empire is threatened by a new force which has been brought about and encouraged by modern civilisation—that is the modern civilisation of our late enemies, who taught us to kill women and children. Before that we fought like gentlemen. In the old wars we fought very hard, but we only fought against the trained and armed forces—we did not interfere with the civilian population; but such has been the advance of civilisation that now, instead of fighting armed forces, we fight the civil population. I think it is about time that public opinion became a little more alive to the situation. It is a great scandal to talk about our "obsolete" forefathers under present-day circumstances. The white people will eventually wipe themselves out, and they will deserve their fate if they do not face the situation. Therefore, I attach great importance to the Dominions doing their fair share. If the home government, however, have no policy, and it depends upon whether Mr. So-and-So, or somebody else, is Prime Minister, how can one expect the dominion governments to help themselves? They are in the same position: they have their politicians, and they have to get their votes. We have to educate the people in that sea-sense of which Admiral Goodenough spoke just now; the sea-instinct has kept our race going, and we must develop it in our great dominions if we are going to maintain our great position in the world.

I notice the lecturer mentions the question of change of ships. We would very much like a change of ships—if the Dominions had any ships—but, as far as I can see, they have none except one or two obsolete cruisers. I think it is a very serious matter, and it is a good thing that it has been brought out so clearly to-day so that every man in the empire can see where his duty lies. I am quite sure the dominions will do their duty if they realise their responsibilities. Singapore is

one of our links with Australia, but is one of the points which some of the politicians are trying to prevent being constructed. That is mostly an Australian and New Zealand question, but also an imperial one, because we want to keep our dominions, and not to have them cut off from the mother country due to their own lack of ability to realise their dangers.

CAPTAIN WILFRED EGERTON, R.N. : I thought the main point which the lecturer brought out was the extraordinarily unsatisfactory position of the dominion navies at the present time. They have hardly a ship or vessel of their own construction in the fleet. They are simply living on what the Admiralty gave them at the end of the war; they are making no provision whatever for the future, either to replace or supplement those ships. It is no good blaming the dominions; there must be some very good reason for it, and I think it is to be found in the entire lack of interest which there is in the matter. That lack of interest arises from the fact that the dominions do feel that their units are not a part of the navy, but that they are just an appendage to the navy—just attached to the navy.

When we want money for the navy we proclaim that the navy is an insurance, and therefore it is right to pay so much towards that insurance. I feel the first thing that should be done is to get to some agreement about the relative danger the empire and its units and to determine, on a purely cash basis, what each one of the dominions should pay for its naval defence. It is not sound policy, or desirable, that that money should be paid to the Admiralty to spend on the *British navy*, but it would be better if the money was spent under some central organisation, under one authority and under one administration. The suggestion which I should like to make—perhaps a rather far-reaching one—is that in order to make this navy real to the empire, we should make it *H.M. Imperial Navy*, that we who serve in it should become *H.M. Imperial Officers*, and that the ships should become *H.M. Imperial Ships*. I feel that if that could be done we should get a real feeling on the part of the dominions that the navy belonged to them, and then they would be willing to pay their fair quota on that cash basis which I have suggested. Then, and only then, should we really get one service throughout the Empire for the protection of the whole empire.

CAPTAIN H. E. HOLME, R.N. (ret.) and late R.C.N. : I should like to say a word about the Canadian navy, in which I have served for some years. What the last speaker said is very true indeed. I found during my service that it was very difficult to make people understand that the *personnel* of the R.C.N. was on the same footing as that of the royal navy, and this frequently had very unpleasant consequences.

This condition is mainly due to the fact that the Canadian Government has always concealed from the Canadian people what their navy has been doing. Up to the present moment, the Canadian people hardly know that they have a navy; certainly they have no idea that a contingent of six thousand Canadians served at sea, and largely in European waters, during the war, and that almost all of the officers of the R.C.N. also served overseas. Another important point is that the future of the R.C.N. is so insecure, and this has a most disheartening effect upon the officers of that service. When the Canadian navy was first started a number of boys entered the Naval College upon the distinct understanding that the Canadian navy would offer them a permanent career. The Canadian naval College was excellently run from the first. It gave an admirable training, and, from personal experience, I know how well the midshipmen it turned out promised. But I could not help noticing, after the service was reduced, how unfortunate an effect

—as may be imagined—the uncertainty regarding their future had upon these officers; they did their work, but all the life seemed to go out of them, and they were absolutely discontented; and I am sure it was the fact that they had no prospects, and did not know whether they might not be called upon to leave the service at any moment, which depressed them and went far to destroy their usefulness.

It is extremely difficult to make the Canadian people understand the needs of a navy. Theoretically, they all want one, but they have never faced the question of expense. You cannot blame them, for a population living mainly inland, farming, and on the prairies, cannot be expected to realise the facts of the matter. For this reason, I do not know if the Canadians could be induced to contribute to such an imperial naval fund as was proposed by the last speaker. They want their *own* navy, but it is when the question of supporting that navy comes up that difficulties arise. The Canadian Navy League used to do very good educational work, but when I left Canada in 1921 it was not in a very flourishing condition.

The material for a naval force is very good. I found, during my experience of seven years, that the Canadians make very good sailors. They are intelligent, and behave very well, are courageous and good fellows to work with, and, if suitably trained, would be very valuable in the case of an emergency. But it is only in this way, as I believe, that Canada can make a useful contribution to the naval resources of the empire. Anything like an efficient squadron is out of the question for many years to come; but the Dominion could, and would provide, if suitably encouraged, a body of men trained to serve afloat who would be of the greatest use in the time of a national emergency.

VICE-ADMIRAL SIR ERNEST GAUNT: I had no thought of rising until, in the course of the discussion, I found that the Dominions were being spoken of in a tone which I rather think they would resent. I listened last night to the Prime Minister of Australia, who spoke in a very different way about the home country. I think you will find that the dominions are always ready to do their utmost, although, no doubt, a certain amount of propaganda is necessary in order to make them appreciate the value of sea-power. Sir Doveton Sturdee spoke about the mother country being the heart of the empire, and the dominions being the limbs. We are held together by the veins and the arteries, but in this matter what runs through them is not blood, but cash. The dominions are short of cash. The Prime Minister of Australia explained last night very clearly that there was not sufficient migration to Australia. More population means, of course, more cash. It all comes down to a question of imperial preference. I am not going to start talking politics here; that is only what I listened to last night. I think you will all find it worth your while to read the speech of the Prime Minister of Australia. I do think here at home that we are very liable to speak of the dominions in a way in which the dominions would not speak about the home country. It is always a mistake to speak of each other except in terms of the greatest regard.

THE CHAIRMAN: I should like to thank the lecturer for his very interesting paper. It must have given him an immense amount of work to get all the facts and data together. He has handled the subject in a very masterly way.

I may say that, from the point of view of the Admiralty, our policy generally in dealing with the dominions' navies is to help them in every possible way; but there are two limitations. One is that we must not help them to the extent of

spending money which is provided by our taxpayers on objects for which their own taxpayers should provide. That is very important. We never have any difficulties about the matter in administration, because it is well understood what they pay for and what we pay for. For instance, we lend them men, who go out to the Australian or New Zealand navies for a term of years, and they pay those men and their passages and their pensions contribution. In the same way their officers who serve in our Navy for instructional courses, or on board our ships, are paid for by their own Governments. The other limitation is that in helping them we have to look after our own people; that is to say, we have to take care that we employ officers from the dominions' navies in such a way that their employment does not put our officers on half pay.

You might like some information about the officers whom we have serving. This information was got out in case it was required at the Imperial Conference, and it is about a couple of months old. Out of a total of 345 Australian officers, 84 are serving in our ships and establishments. Out of 67 Canadian officers, 33 are serving in our navy. Sixty-seven Royal Naval Officers and 341 men were lent to the Royal Australian Navy; 33 Royal Naval Officers and 256 men were lent to the New Zealand Navy; 7 Royal Naval Officers and 10 men were lent to the Canadian Navy; 1 officer and 24 men were lent to South Africa, also 1 retired officer. The total number of Royal Naval Officers lent to dominions' navies was as follows: active service officers, 108; retired officers, 23; active service men, 631. A considerable proportion of the ratings belonging to the Dominions' navies are ex-naval ratings from our Navy. For instance, the New Zealand Navy consists of about 460, and over half are ex-R.N.s. Very few Dominion ratings are serving in our navy, for the simple reason that they cannot spare them; they want them where they are. But they come here to qualify as higher gunnery and torpedo ratings, etc. We have at present about 11. We have never refused to take anybody that they wished to send us. I may say that we are on very good terms with the representatives of the dominions' navies, who administer their affairs in London. We always seem to be able to arrange things satisfactorily, and we have always found them most excellent people to work with; at least, that has been my experience over three years, and I hope it will always continue to be so.

I now beg to move a hearty vote of thanks to the lecturer.

The motion was then put and carried with acclamation.

LORD METHUEN: I have very much pleasure in moving a hearty vote of thanks to the chairman for his conduct of the meeting. I feel rather like a fish out of water, but it so happens that living in the country, I cannot often come here. The last time I was here I presided over an excellent lecture given by my friend on my right. I had nine years' service in South Africa; during that time I had two or three thousand Australians and New Zealanders with me in the South African war. I have always had a great number of them with me in Malta. There is no feeling of want of patriotism in them; on the contrary, I have always found a colonial more patriotic than we are in the mother country. The fault lies in connection with continuity of action. Lord Curzon was saying last night in the House of Lords that the great thing with us in the Foreign Office was continuity. I only wish that the same could be said for the navy and army. The reason why the German army was so perfect was that there had been continuity from the very beginning. There were only about six heads, and the consequence was that they carried on with continuity from 1814 to the late war. So it would be with the navy and army, but unfortunately as Governments change so our system changes. There is no difficulty whatever about the colonies. They will support us if only they know

what we want. It is that continual changing on our part which brings a certain amount of want of confidence throughout our colonies. If only these conferences are worth what conferences should be worth, and if the dominions clearly understand from our government what is wanted and that there will be no changing, then there will be a great deal more confidence in the colonies, and it will be for the good of the empire.

With these few words I move a vote of thanks to the Chairman. (Carried with acclamation.)

THE CHAIRMAN: I beg to thank you for your vote of thanks. If I have not carried out my duties as chairman particularly well, it is because this is the first time I have had the honour of presiding in this hall.



GOLD MEDAL (NAVAL) PRIZE ESSAY FOR 1923.

SUBJECT:

"THE ADVANTAGES AND DISADVANTAGES OF A
SEPARATE AIR FORCE FOR THE ROYAL NAVY."

By CAPTAIN A. H. NORMAN, C.M.G., R.N.

MOTTO:—"Pro Fide Strictus."

CHAPTER I.

LIMITED OR UNLIMITED WARFARE?

THE powers signatory to the Washington treaty have undertaken "as between themselves" to observe certain restrictions in their conduct of future warfare, among which are the prohibition of the use of submarines as commerce destroyers, and the prohibition of the use of asphyxiating, poisonous, or other gasses.

While all must sympathise with the humanitarian sentiment which has inspired the authors of this historic agreement, it is necessary nevertheless, in the world in which we live, to make provision, not for war as it might be conducted, but for war as it may be conducted; and to the latter no limits can be set. War, by its very nature a resort to force, is peculiarly unsuited to legal restrictions and limitations. All laws rest ultimately on force for their sanction; and, where force itself is in dispute, no guarantee can exist that law will be respected.

Despite the provisions of the Washington Treaty, therefore, the regrettable fact remains that it is necessary to be prepared for unlimited warfare; and this is the more essential because, whilst an organisation devised for unlimited warfare can easily be contracted into one sufficient for limited warfare only, it is not practicable to expand an organisation devised for limited warfare into one capable of dealing with unlimited warfare.

CHAPTER II.

AERIAL OPERATIONS OF UNLIMITED WARFARE.

The two principal weapons of unlimited warfare are gas and the submarine, the extended use of the former having been rendered practicable by the development of aircraft. The uses of gas as a weapon

of war are almost unlimited; the objectives open to it are as numerous and diverse as the manifold activities which compose the life of a nation.

At one end of the scale stand direct attacks on the armed forces—on the army in the field and on ships of war at sea; it is difficult to believe that in any future war, this form of warfare will not be resorted to. Next comes indirect attack on the armed forces by direct attack on strategic points in rear of the lines, such as railway junctions, ammunition dumps, provision depôts, naval bases, dockyards, etc.; then come gas and bomb attacks on sources of supply to the armed forces, such as munition and equipment factories, docks, warehouses, etc.; further on, and getting now on to very debateable ground, is direct attack on the *personnel* employed in such factories, docks, and warehouses; and lastly, at the opposite end of the scale to direct attack on the army and navy, comes direct attack on the *morale* of the nation by indiscriminate bombing and gassing of all persons in it.

It is evident that, once opposing nations embark on the use of gas in war, it is impossible to foretell the limits to which they will be forced to go.

Considerations of the strategy of future wars, therefore, must be based on the principle of the unlimited use of gas and of the submarine in war.

Now the simplest and most accurate way of assessing the influence on strategy of gas-carrying airplanes, is to consider them as nothing more nor less than long range artillery: inferior to artillery, in that there is no certainty that they will reach their objective, or hit it when reached; superior to artillery, in that the projectile is controlled during its flight by human intelligence able to act according to circumstances.

There are two main limitations to the use of the gas-carrying airplane in war: the first, its limited radius of action; this is analogous to the range of the gun; the second, its vulnerability to attack and destruction by fast fighting airplanes. This latter is a serious disability, but can to a great extent be overcome by restricting the use of bombing airplanes to the dark hours; most large towns have natural features, such as rivers or canals, passing through them, which at night help to indicate their whereabouts to a would-be bomber.

A gas-carrying airplane travelling 70 miles an hour could cross an enemy's frontier at 10.0 p.m., bomb a town 200 miles inside it, and be clear across the frontier again on its way home by 4.0 a.m.; defensive airplanes could do little to stop it, owing to the impossibility of locating it on a dark night.

It is evident, then, that any town within a distance of 200 miles from its own frontier or coast, and within the radius of action of bombers starting from the nearest enemy aerodrome, is liable to suffer gas and bomb attack by airplanes, and to that extent may be considered as being situated actually on the battlefield.

It follows that the population of such towns must be organised to cope with the conditions under which they will have to live; also that important points, such as depôts, munition factories, bases, etc., will be

driven further and further behind the lines, in order to secure the protection from attack that distance alone can give them.

If a map of Europe be taken and the borders of each country be hatched to a distance of 200 miles inside its boundaries, a glance will show the problem with which all countries are confronted—how the position of important cities, dockyards, ports, etc., no longer answers to the requirements of present day strategy.

Bombing attacks need not necessarily be limited to the dark hours; if an escort of fast fighters, sufficient to sweep aside all opposition, can be provided, attacks can be made in broad daylight; the attacking country would have the advantage of the initiative and would be able to concentrate all its forces at the decisive spot; the defending country might be found with its forces scattered in the endeavour to cover several possible objectives at once. The problem is the old problem of coast defence in another form—and the old principle holds good, namely, that an attempt to be strong enough everywhere can only lead to being too weak everywhere.

Will it be worth while to lock up aircraft for local defence purposes at all? Will they not be better employed in carrying out retaliatory raids over the enemy country, on the old principle that offence is the best defence?

There is no analogy between the defensive functions of a "fleet in being" and an "air force in being"; the former prevents invasion by its threat of cutting the communications of an invading force *after* it has landed; it also checks coast bombardment by its threat of cutting off the retreat of the bombarding vessels. An "air force in being" does neither of these two; there are no communications to be cut; and an air force attacking by night has a safe line of retreat practically assured.

Enemy aerial activity may be checked to a certain extent by attacks on his aerodromes, but it is not probable that such attacks will be very effective. Hangars can be made bomb and gas proof; flying grounds, if damaged, can be repaired; the future will probably see arrangements perfected whereby airplanes, even heavily laden bombers, will be launched into the air without the necessity of a long preliminary run over a level field; landing presents more difficulties, but airplanes can land in water if necessary, and an artificial lake would be a difficult thing for hostile aircraft to damage.

Airplanes are of considerable value as a means of local defence against enemy surface vessels; here again they may be likened to long range artillery, coast defence this time; a modern war-vessel would run an unnecessary and unjustifiable risk by approaching, unless adequately escorted by airplanes, within reach of any coast defence bombers. Airplanes form, therefore, an excellent protection to coast towns against bombardment by enemy ships; it is true that this is not a very important matter, as the results of such bombardments seldom justify the energy expended on them; but such as it is, airplanes fulfil there a function of some usefulness.

The value of airplanes as guardians of the terminal ports of trade routes is discussed in Chapter IV.

Since enemy airplanes cannot be kept out by defensive airplanes, towns and cities in the battlefield area must be equipped with adequate anti-gas measures, if they are to survive; it is possible that the use of gas-masks, anti-aircraft guns and other devices may enable this to be done, and even perhaps render gas attacks innocuous; but such a development is hardly in sight at present; and large towns and cities within the extended battlefield area of modern warfare are, under existing conditions, conspicuously weak spots in a country's defensive armament.

It will now be of interest to consider a few specific cases of war operations, with a view to determining more closely the effect of airplanes on strategy.

Let us take, firstly, a rather impossible but nevertheless a very helpful, case, namely, that of two countries with a common land frontier, so situated with regard to one another that no portion of either country is more than 200 miles from the aerodromes in the other country. Evidently, if these two countries go to war, the whole area of each country is open to gas attack by the enemy airplanes and therefore comes into the danger zone; the case is the same as if, in the aerodromes of each country there were mounted guns firing gas shells with a range of 200 miles.

The rules of ordinary land warfare will now apply, namely, that each country will endeavour to develop the maximum intensity of fire on its enemy's country and will also endeavour to invade it, in order to capture the heavy gun positions (or aerodromes). At the same time, each country will endeavour, by means of its naval forces, to prevent the other from receiving supplies and succour from overseas.

The fact that the gas projectiles are carried to their destination, instead of reaching it by their own momentum, in no way alters the general strategic principles on which the war will be fought; these remain the same as ever they were; the airplane merely provides an alternative and more far-reaching weapon with which to bombard the enemy country.

It is evident that in the case above examined, the entire population of each country must accept and endure the dangers and discomfort incidental to life in the danger zone, and must be organised for that purpose. The organisation necessary is comparable to that required for the equipment and maintenance of an army in the field; it is unnecessary to observe that in such a case as we are considering, a country which postpones the creation of that organisation until the outbreak of war will start at a great disadvantage, unless its opponent has been equally neglectful.

Let us now take the more probable case of two countries with a common land frontier, but with a considerable portion of each country more than 200 miles from that frontier; then that portion of each country will be outside the principal danger zone and will form an asylum of com-

parative security for the non-combatant portion of the population, such as has always existed hitherto.

The strategic objective for each country now will be to drive back the enemy's land forces until it can reach the whole enemy country by its airplanes—just as, when it is desired to attack an enemy force in a certain position, an endeavour is made to secure a position from which the enemy position can be bombarded by heavy gunfire. Once one country has successfully invaded the other and has succeeded in driving back his land forces to within 200 miles of his further boundary (if necessary to go so far) it has, provided that gas warfare is effective up to that distance, obtained an advantage that will probably prove decisive.

A further variation is when the two countries are separated by a narrow stretch of water. Here the same principles and objectives as above hold good, but one country cannot invade the other until permanent command of the sea passage has been secured. If such command is in dispute, and neither side can invade the other, and their respective air forces are, at the commencement of the war, approximately equal in strength, then the advantage will lie with that power which can most rapidly reinforce its own armaments, and which can most effectively prevent its enemy from receiving succour and support from other countries. In other words, in the case of an island country, its safety from invasion and its ultimate victory depends on its maintaining the command of the sea.

If the two belligerent powers are separated by a wide expanse of ocean, then it is necessary, before one can deliver a gas attack on the other, that it should seize a base from which to operate. This, of course, involves the despatch of an expeditionary force in full panoply, escorted and protected by adequate naval forces; such an operation cannot take place over an uncommanded sea, and therefore for its successful prosecution, command of the sea is required.

Thus we see that, while the advent of airplanes has affected strategy to a minor extent, by rendering long range bombardment possible and thereby extending the area of the battlefield, it has had no effect on the general principles of strategy; navies and armies are still required for the same purposes as they have always been; airplanes (apart from those actually forming part of the army and navy, which are discussed in the next chapter) are required for the purpose of carrying out long range bombardments of enemy territory.

No reference has been made to lighter than aircraft in the preceding paragraphs, for the reason that it seems improbable that these vessels will ever be of serious military value; even if the difficulties of harbouring and housing them could be overcome, it does not appear that a dirigible would be likely to survive an attack by a number of fast fighting aeroplanes; and as it cannot run away from such an attack, its chances of escape are slender if it ventures over enemy territory. Dirigibles may be used successfully in home waters for patrol duties, where they are free from enemy interference; but outside of their own home waters their military value is at present practically negligible.

CHAPTER III.

THE ARMY AND AERIAL OPERATIONS.

It will be convenient at this stage to examine the question of the command of the air and land forces in such wars as have been visualised above. It is obvious that all forces operating on or over the land must be under one supreme command; now these land forces consist of various arms, *e.g.*, air arm, artillery, infantry, cavalry, tank force, engineers, etc., etc.; the problem is to bring the whole into one organisation, so that their various operations are duly co-ordinated and controlled.

Previous to the advent of the air force, this problem was satisfactorily solved by incorporating into the existing army each new arm as it came into being; but, in the case of the air force, this procedure has been shelved and an entirely new principle adopted, *viz.*, that of making one arm independent of and separate from the rest.

No reason is known for this departure from precedent; the old-established custom has stood the test of centuries of warfare, including that of the last war, where the army Flying Corps successfully functioned as an integral part of the army to which they were attached. Now it is shelved in favour of a system which appears to render most difficult of attainment the requisite degree of co-operation in war between the air arm and the remainder of the land forces.

The position of the artillery, or of the tank force, relative to the army, provides an excellent illustration of forces independent of the rest of the army as regards supply and maintenance of their own special *matériel*, but working in the closest tactical co-operation with that army and forming an essential integral part of it; there is no reason whatever why the air arm should not occupy a similar position; the *matériel* they use is peculiar to themselves: so is that of the artillery; they are required to conduct, in the closest tactical co-operation with the rest of the army, operations against the enemy forces: so is the artillery; they are required to carry out long range bombardment of positions behind the enemy lines: so is the artillery; their essential function (excluding spotting and reconnoitring airplanes, etc.) is to transport a projectile to a position where it will cause damage to the enemy: so is that of the artillery; and, as artillery officers by virtue of their position and training as officers of the army, can rise to the highest posts in that army, so it is desirable that air force officers should be eligible for promotion.

So far, therefore, as aerial operations over the land are concerned, it is essential, if proper co-operation is to be secured, that the air force employed should be part and parcel of the army, and that it should occupy, in that army, a position similar to that now held by the other arms, artillery, tank force, engineers, etc.

Airplanes are likely to exert a considerable influence on the type of military weapons of the future.

The power of airplanes to cover whole areas with gas will tend to introduce a similarity between land and sea warfare, in that parts of a

battlefield, as land, will be no more habitable to man than is the sea; and as, in order to exist in the sea, man has to enter into something that floats, so, in order to exist on the battlefield, he will have to enter into something that is gasproof; the most likely "something" appears to be the tank. The gassed area that may be expected between the contending armies can be likened to the sea, and the tanks moving through it to warships moving over the face of the waters; while the danger of drowning to which the sailor is exposed when his vessel is sunk will find its counterpart in the danger of being gassed, to which the crew of a damaged tank would be exposed.

Thus the land battleship or tank seems likely to become a very important feature of the army of the future; it will doubtless be backed up by artillery, possibly equipped with gasproof gun shields and caterpillar tracks, and thus will be hardly distinguishable from tanks proper; the principal functions of infantry, it seems, would be to act as the labourers of the battlefield—to consolidate and organise positions won by the tanks.

CHAPTER IV.

THE NAVY AND AERIAL WARFARE.

The influence of aircraft on ship design is likely to be equally marked. Aircraft can attack ships in two ways—by gas and bomb:—(in the latter is included the torpedo).

As regards gas, the extent to which this will be a menace to warships remains to be determined; should it prove serious, it may be necessary for warships to develop the power to make themselves gasproof at will; this power could undoubtedly be incorporated in new designs; whether it would prove feasible to introduce it into existing ships is a matter for investigation.

As regards bomb attack, a heavy bomber is a considerable menace to a warship, even to a capital ship; but the heavy bomber is helpless before the attack of a fast fighting aeroplane, and such machines must therefore be available to protect any capital ship in waters where heavy bombers may be met with. There seems no reason why the capital ship of the future should not be designed to carry a number of such fast fighters, which should furnish her with ample protection against any attack she would normally be likely to meet.

Existing warships, capital and otherwise, being neither gasproof nor equipped with more than one or two airplanes, must rely on their anti-aircraft armament, and on airplanes carried in carriers, for their defence against enemy airplanes; it is possible that these measures may prove effectual, but it seems more than probable that, until warship design has made provision for the new menace offered by airplanes, the latter will secure some slight temporary advantage, and it will be advisable for ships of war, unless adequately escorted by their own airplanes, to avoid waters wherein enemy bombers may be met. This, fortunately for the ships, is

a comparatively easy matter, since bombers, by their limited radius of action, are confined to operations within a short distance of their bases, which capital ships will normally have no reason to approach.

Merchant ships are vulnerable to both gas and bomb attack, and it is improbable that future design can in any way lessen this vulnerability, except perhaps by the provision of anti-aircraft guns. They must, therefore, for purposes of defence, be formed into convoys and escorted by aircraft-carriers through the danger area from enemy bombers.

Convoys of merchant ships are also open to attack from submarines and from surface craft. Against the former, aircraft do not provide adequate protection, as they are unable to see the submarine unless it breaks surface, and, even if they see it, are unable to attack it effectively unless they can reach it before it dives. The most effective protection for a convoy against enemy submarines is a screen of light surface craft equipped with submarine-detection appliances and depth charges.

Against an enemy surface craft, aircraft might, if in sufficient numbers, prove an efficient protection to a convoy; but surface craft will normally operate on the ocean highways, to which aircraft will not be able to penetrate, and therefore for the defence of a convoy against surface craft, surface craft are needed.

It will now be of interest to examine to what extent the air force can assist the navy in its duties.

The function of a navy is to ensure the unrestricted use of the high seas to its own nationals, and to deny it to those of the enemy. The seas may be used either for the transit of merchandise or armed forces; the problem to be solved by the navy is the same in both cases, namely to protect the ships of its own nationals, be they transports or merchant craft, and to seize or destroy those of the enemy, while a subsidiary problem is the exclusion of neutral traffic, so far as legal limitations permit, from the ports of the enemy or of adjacent neutral countries.

Now let us consider the protection of mercantile craft, or, as it is more commonly called, the protection of the trade routes.

The most vulnerable points of a trade route are its terminal points, as it is here that all routes must converge; a simple arithmetical calculation will show that if five submarines are disposed on an arc at a distance of $6\frac{1}{2}$ miles from a terminal port, the routes to which converge at an angle of 45° , they will, with a radius of visibility of one mile, sight every merchant craft approaching the port, whereas if they are 64 miles from the port, they will only sight 15 per cent. of the ships approaching the port. Thus, while in the former case every ship would be sighted and possibly sunk, in the latter case only one in seven would be seen. Incidentally, it may be mentioned that, if 100 mercantile vessels be collected into a convoy, in the first case the submarines will sink, say, 10 vessels out of the convoy, or one vessel in 10; whereas in the second, the submarines will only sight one convoy in 7, and the percentage of

losses will, therefore, be reduced from 10 per cent. to 1.4 per cent., or 1 vessel in 70.

Airplanes and dirigibles can here be of great assistance to the navy by patrolling the approaches to the terminal ports, and thereby forcing enemy submarines to keep at a distance from them.

In this work, however, aircraft, to be fully effective, require support by surface craft; the ideal organisation appears to be a patrol of dirigibles and fast air scouts, operating over the approaches to the ports, to report any enemy vessels seen, with reserve squadrons of heavy bombers and surface craft ready, on the report of the scouts, to seek out the enemy, and destroy him. It is evident that such an organisation, to be effective, must work under one direction, and therefore either the aircraft concerned must be placed under the local naval authorities, or *vice versa*. The type of surface craft to be sent out would of course depend on the nature of the enemy vessels reported; the more powerful the enemy unit, the more powerful would be the force required to deal with it.

Enemy submarines could best be dealt with by patrol craft already in their vicinity, who could be concentrated in the desired spot; enemy cruisers, aircraft-carriers and capital ships would, of course, require similar forces to deal with them.

It will be evident from the foregoing that the operations of the navy and the air force are, so far as local defence of the sea-approach to ports is concerned, so inextricably mixed up that a common organisation is absolutely essential; and, further, it is evident that an operation commenced on the report of a single local air scout may extend into an operation of the first importance, possibly into the decisive fleet action of the war.

From this it follows that the question of whether the navy shall control the air force, or *vice versa*, in matters of local defence, raises the whole question of which shall be the predominant partner in matters of general defence; and as it is clearly impossible that the air force should control the movements of the naval force in the concentrations preliminary to a fleet action, it follows that in matters of local defence of ports, so far as their sea approaches are concerned, the aircraft employed must be under the direction of the local naval authorities.

Another operation in which the assistance of aircraft is required by the navy, is the bombing of enemy war-vessels in their bases, and attacks on enemy naval bases.

The advent of aircraft has provided the navy with a weapon which it has long lacked, namely, a means of forcing enemy ships to leave their base. Whether or not such means will prove effective, depends of course on the degree of local defence available at that base; but it is certainly conceivable that a base could be rendered untenable, by repeated air attacks. Obviously it is necessary that, when the enemy ships are driven out, a fleet should be waiting in strategical support ready to destroy them. This necessitates the closest co-operation between the naval and aerial

forces concerned, and as in the case of local defence, the co-operation can only be obtained in full by the two forces acting under a common direction. The whole operation is of a purely naval nature, and therefore it is clear that the directing arm must be the navy, and not the air force; so that in this matter, as in that of local defence, the aircraft employed must be placed under the direction of the naval authorities.

In the operations above described, the co-operation of the air forces with the naval forces has been strategical rather than tactical; there are many other operations in which close tactical co-operation is required, among which may be cited reconnoitring with a fleet; gas bombing, and torpedo attacks in a fleet action; spotting for gunnery; attack of enemy aircraft in a fleet action; screening fleets against submarines; forming a protective escort for convoys, etc., etc. In these operations it is self-evident that the aircraft employed must not only work under the orders of the naval commander, but must be just as much part of the fleet as are the submarines, destroyers, cruisers, or any other arm.

It is now necessary to examine what are the qualification required by the *personnel* of the aircraft working under the directions of the navy; and it will simplify matters if we first set out, in tabular form, some of the duties required of these aircraft. They are—

- (a) Patrol of trade routes in the approaches to terminal ports.
- (b) Attack on enemy vessels discovered in the area patrolled.
- (c) Attack on enemy ships lying in their bases.
- (d) Attack on enemy naval bases.
- (e) Forming protective escort for convoys.
- (f) Reconnoitring with a fleet.
- (g) Attack on enemy aircraft prior to, and during a fleet action.
- (h) Gas, bomb, and torpedo attack on enemy vessels during a fleet action.
- (i) Spotting for gunnery during a fleet action.
- (j) Laying of smoke screens during a fleet action.
- (k) Screening fleets against submarines.

For these duties two main qualifications are essential—the first, ability to fly, and to fight, in aircraft; the second, ability to recognise the various types of ships, to understand their manœuvres, the formation of their squadrons, their powers of offence and defence, their limitations of movement, their functions in the various operations, and, the nature, scope, and purpose of their work.

The first of these qualifications can be acquired in a few months by any individual possessed of the requisite temperament; the second can only be acquired by actual life in the navy itself, and for this reason it is essential that the *personnel* of aircraft operating with the navy should consist of naval officers and men trained to fly, and not of air force officers and men.

In addition to the above qualifications, each member of the aircraft *personnel* must be specially trained in his own particular duties, such as

spotting, reconnoitring, torpedo attack, etc.; it is evident that such training can best be carried out if the aircraft and *personnel* concerned are a component part of the navy, entirely at the disposal of the naval authorities and therefore available when required, and working solely under their direction.

CHAPTER V.

CONCLUSIONS.

It has now been shown that all aerial operations, whether over-land or sea, are only parts of greater military or naval operations; that such operations must be carried out under the control and direction of the military and naval authorities, and that the *personnel* required to man the aircraft employed in those operations must be soldiers and sailors as well as airmen. Naval and military air arms forming part and parcel of the navy and army; trained, administered, maintained, officered and manned by the navy and army, are, therefore, essential to the proper functioning of those two forces, who can no more operate without them than they can operate without guns or torpedoes. For an independent air force no function exists; the best it could do, in time of war, would be to split into two halves, join the navy and army, and endeavour to adapt itself, as rapidly as possible, to the duties for which it is really required. The naval and military air arms, however, do bear a special relation to one another, by virtue of their common airmanship, which does not obtain in the case of any other arm; and it is desirable to preserve that relationship, not only to facilitate the exchange of units between the two arms, should an emergency arise which rendered such a course necessary, but also to ensure unity of progress in air technique, and economy in supply and provision of stores and material. This could be effected by the establishment of a central flying school, officered and manned by the naval and military air arms in conjunction, which could undertake the following functions:—

- (a) Instruction in flying.
- (b) Instruction in design, operation, and maintenance of material.
- (c) Preparation and issue of manuals.
- (d) Research and experiments.
- (e) Provision of material.

To this school all naval and military officers and men could be sent to receive their first lessons in the art of airmanship; there they would receive a common groundwork training, and the two arms would there acquire a sense of community of interest and ideas which would facilitate any future co-operation that might be required of them in the schools or on service.

In addition to the central flying school, there should be naval and military flying schools where details of the art peculiar to the navy and army respectively would be taught, and where research and experiments

would be carried out. The result of such experiments would of course be communicated to the central flying school, in order that due co-ordination of progress and dissemination of knowledge should be secured. The naval and military air arms should each be responsible for the care and maintenance of their own material, and for the upkeep and administration of their own aerodromes. They would obtain their stores from the central flying school, which would be responsible for its acquisition, and for the accumulation of the necessary reserves.

Such an organisation as that outlined above would combine the administrative advantages derived from unity of organisation between the two air arms, with the strategical and tactical advantages derived from each being an integral part of the force with which it is operating. The establishment of an independent air force secures the former advantages, which are of comparatively minor importance, but it completely fails to secure the latter, which are of vital importance.

The pith of the whole matter may be summed up in a few words.

In war, there are, and always have been, two objectives—firstly, the enemy's towns; secondly, the enemy's ships.

Towns can (normally) only be attacked by land forces, ships by sea forces. Hence the division, throughout all history, of the armed forces of nations into navies and armies.

The air provides a third way of approach to the two original objectives, *but does not provide a third objective.*

Lacking a third objective, no *raison d'être* for a third arm exists.

The elevation of the air force to the status of a third arm is therefore unsound; and persistence in so fundamental an error in time of peace can only lead to disaster in time of war.



SECOND (NAVAL) PRIZE ESSAY FOR 1923.

SUBJECT:

"THE ADVANTAGES AND DISADVANTAGES OF A
SEPARATE AIR FORCE FOR THE ROYAL NAVY."

By LIEUTENANT-COMMANDER G. N. W. BOYES, R.N.

MOTTO :—" In the cause that is righteous
Sweet is the smell of powder."

Longfellow.

INTRODUCTION.

IT has been found necessary to divide this essay into various sections.

The first section touches upon the function of the navy and air force in the scheme of imperial defence, followed by a brief *résumé* of the history of the period when a separate air force existed for the navy, up to the time of the formation of the Air Ministry in 1917.

The second section deals with the uses of aircraft in naval operations and the types for naval service. Mention is next made of *personnel*, research, administration and co-operation.

Section IV. outlines the existing policy of foreign nations with regard to the relationship of sea and air forces, and terminates with a reference to the importance of civil aviation.

The final section sets out briefly the various advantages and disadvantages which have been advanced in favour of and against a separate air force for the Royal Navy.

CHAPTER I.

IMPERIAL DEFENCE.

*History of the Royal Naval Air Service up to the formation of the
Air Ministry.*

War is the ultimate method whereby one nation seeks to impose its will upon another nation. Hitherto, this method has been carried out by armed forces on land and sea. The great war witnessed the introduction of warfare in a third element—the air—in which warring nations attempted to encompass the downfall of their enemies. This essay treats of the co-relation of the armed force on sea and the armed force in the air.

When these three elements meet, it is frequently difficult to limit to an exact degree the nature and scope of the several warlike operations. This difficulty, experienced on land and sea, has now become intensified by the use of the third element, which flows freely alike over the two others. Hence arises the subject which it is proposed to discuss.

The armed force on sea—for the British Empire termed the Royal Navy—exists for certain well founded and established reasons: (a) Imperial Defence in general, and (b) the destruction of an enemy's armed force on sea, and the protection of coasts, shipping and lines of communication in particular.

In order to perform these functions, many types of ships have been evolved and, with the march of scientific development, no finality has ever been reached.

Whether an enemy is under, on, or above the sea, the duty of attack and destruction remains. Until this duty has been delegated to other arms, it is a responsibility to be borne by the Admiralty under the control of the Cabinet; if it is agreed that this responsibility has already been partially delegated to another arm, an endeavour will be made to investigate the extent of such delegation, the advisability or otherwise of a return to the *status quo ante*, and the means whereby this may be effected.

While the Imperial responsibilities of the navy can be more or less outlined, nobody at present can define the similar responsibilities of the R.A.F., or even its future relationship to the other fighting services.¹

The existing policy of the Government is that the Air Ministry shall be in supreme charge of flying on land and sea. But the First Lord's recent statement² showed that the Admiralty were actually retaining and training a certain number of officers and men preparatory to a decision of the Cabinet to establish an air arm of the fleet as a component part of the navy.

It has been asserted in some quarters that the R.A.F. is fully capable of patrolling trade routes and repelling invasion by sea—in other words, of performing functions hitherto the duty of the navy.³

Security at sea, however obtained, is vital to our empire, and until it can be completely secured by air, it would appear advisable to obtain it by those means which we have hitherto found efficacious. Therefore, the responsibility for sea operations, together with conjoint operations, should be the immediate concern of the sea officers under the Admiralty.

"The strength of our widespread empire lay in its physical, as well as its moral unity, and its physical unity was, and must always be, maintained by sea."⁴

(¹) The Minister for Air announced in the House of Commons on 14th March, 1923, while introducing the Air Estimates, that these matters were to be fully enquired into by the Committee of Imperial Defence. Certain details, since transpired, are dealt with in the section under "Co-operation." See also Cmd. 1938.

(²) Navy Estimates, 1923. Cd. 1818.

(³) Air Estimates Debate, 1923.

(⁴) Admiral of the Fleet Earl Beatty at Leeds, 18th October, 1922.

Take, for instance, the case of Australia. There exists in that country a strong determination for a white Australia, though much of the land is unfitted for the habitat of white persons. With naval power, it should be possible to preserve a white Australia, but without naval power, or even with a decline in the protection which we can afford to that country, it is not easy to see how an invasion by Japan, or even a rejuvenated China, could be avoided. Air power and sea power become so closely co-related in such a problem that it is impossible to disintegrate them. The danger from the air in the problem of Imperial defence may be said to be in inverse proportion to the distance of the enemy. It seems impossible at present to produce a settled formula.

At home, in the case of a war with France, Imperial defence becomes largely a question of the air, whereas, in Australia, the air question becomes a naval question.

The naval air arm must always remain subsidiary to naval strategic requirements.

This growth of an acorn to an oak has taken place before our very eyes, aided by the intensive culture of active war operations.

The year 1907 is noteworthy in the annals of aviation. In that year the airship "Nulli Secundis," under the ægis of the War Office, flew around St. Paul's, and landed at the Crystal Palace. Airships also attracted the Admiralty at this time, but, after the destruction of the "Mayfly" in 1908, the naval authorities placed their reliance upon the heavier than air machine. The War Office, however, continued their airship development till, in May, 1914, the Admiralty took over all airships for the naval wing. Meanwhile, considerable progress had attended the efforts of Count Zeppelin in Germany, in which country the airship completely eclipsed the seaplane at the commencement of the War. In the sphere of aeroplane construction, England had had Cody and Rolls hard at work. In France, Farman and Blériot had met with some measure of success, and two years previously Wilbur Wright, in America, had flown 24 miles in a machine of his own design. The dawn was breaking of a new era. The British Government appointed an advisory committee for aeronautics, and arrangements were concluded whereby the balloon factory at South Farnborough maintained the closest touch with a branch of the National Physical Laboratory at Teddington.

In 1911, the War Office, which had certainly watched the progress of flight, formed two companies R.E. into an air battalion, and it may be reasonably claimed that the R.A.F. derives its parentage from this battalion. This body superseded the balloon school. Towards the end of the same year, and as a result of the rapid strides being made in the new arm, the Prime Minister ordered a standing sub-committee of the Committee of Imperial Defence to investigate the future of aviation for naval and military purposes. Arising from the recommendations of this Committee, the R.F.C. was formed, with a naval and military wing, and a central flying school—contact being maintained with and between

the advisory committee on aeronautics and the balloon factory, later termed "the aircraft factory." At the same time, the Government formed an air committee to co-ordinate the air work for army and navy. A technical sub-committee was formed, consisting of Major-General Sir F. H. Sykes (afterwards Chief of the Air Staff), Brigadier-General Henderson, and Major MacInnes, to formulate a workable scheme. "The objects kept in view in framing the peace organisation were (a) to suit it to war conditions, as far as they could be foreseen; (b) to base it on an efficient self-contained unit; and (c), while allowing for the wide difference between naval and military requirements, to ensure the maximum co-operation between the two branches of the Service."¹ So that one may state there existed, *ab initio*, a danger of lack of co-operation, which the sponsors of the scheme fully foresaw.

In 1912 a central flying school was opened at Upavon, and the military wing established its headquarters at Farnborough. The function of the military wing was reconnaissance for the expeditionary force. The pioneers of this new arm brought the greatest energy and zeal to bear on aerial development, and it is to be regretted that the early archives are not available to those interested.² The function of the naval wing was coast defence and work with the fleet. The Admiralty had already in the previous year (1911) bought two machines, and started a naval flying school at Eastchurch, which became the naval wing headquarters.

The development of seaplanes was slow, and it seemed that defence work would have to be carried out by other types of aircraft. The early seaplane was nearly always associated with the torpedo, and in 1913 the first torpedo seaplane made its flight off Calshot.³

A fertile imagination of the possibilities of aircraft at sea brought forward inventions in many directions—wireless, bombing, submarine detection for use with the home fleet, etc., and other experiments.

In conjunction with the submarine, science was rapidly extending the ramifications of naval warfare. But through all ran the stratum of doubt, uncertainty, and dependability upon weather conditions. Machines which had been scheduled to assemble from various points for army manoeuvres had failed to arrive on account of weather. "How could planes be depended upon at sea, or even off the coast?" asked the sceptics.

Coupled with this slow development of the seaplane was the fact that machines could not land upon a ship's deck, unless specially prepared for that purpose.

In 1912 a plane took off from H.M.S. "Hibernia" under way, and in 1913 H.M.S. "Hermes" was fitted out as an aeroplane ship.

The Admiralty formed in 1912 an Air department under a Director to deal with aerial matters. The training of naval, marine, and naval

(1) "Aviation in Peace and War," by Sir F. H. Sykes, page 23.

(2) They were left at Farnborough on the departure for France, August, 1914, and were never afterwards discovered.

(3) 14 in. Torpedo-Sopwith plane.

reserve officers was carried out at Eastchurch and the central flying school.

It may be remarked that 1912 was the year we changed our war plans to provide for a distant blockade in place of a close blockade in the event of war with Germany.¹ Nevertheless, there existed during the war highly placed sea officers who desired the capture and occupation of Heligoland or other German islands, and who, secretly, if not openly, objected to the submarine and aircraft as impostors in warfare. The following year saw the appointment of an inspecting Captain of Aircraft, with the Central Air Office at Sheerness.

Another year passed, and in 1914 the R.N.A.S. was found consisting of:—

- (a) Air Department, Admiralty.
- (b) Central Air Office, Sheerness.
- (c) Eastchurch Flying School.
- (d) Various air stations round the coast.
- (e) All aircraft, and seaplane ships and tenders used by Royal Navy.

This measure may be said to have placed the naval air force on a self-supporting basis, and the identity of the R.F.C. as a unit *per se* was lost.

When the Air Department was formed to take charge of the naval wing of the R.F.C., its Director was not generally responsible to the Board of Admiralty; he was responsible to each of the Sea Lords in matters connected with that Sea Lord's Department. This divided responsibility which, by old custom, works well enough in a body with established traditions like the navy, was not a good scheme for controlling the unprecedented duties, or for encouraging the unexampled activities, of an air force.²

In 1915, the whole R.N.A.S. was placed under a Director of Air Department, who was to be solely responsible to the Board of Admiralty. At the same time, the Central Air Office was abolished. Various troubles ensued, at the bottom of which was the question of discipline. Moreover, certain difficulties had manifested themselves from the earliest days of the war. Chiefly, perhaps, was that of material, and, to a lesser extent, the supply of *personnel*. It could only be considered natural that those

(¹) Little or no attention in the revised war plans was paid to the air arm, so far as the writer is aware. "The World Crisis," 1911-1915 (Winston Churchill), p. 312, states: "The War Office claimed on behalf of the R.F.C. complete and sole responsibility for the aerial defence of Great Britain. But owing to the difficulties of getting money, they were unable to make any provision for this responsibility, every aeroplane they had being ear-marked for the Expeditionary Force. Seeing this, and finding myself able to procure funds by various shifts and devices, I began in 1912 and 1913 to form under the R.N.A.S. flights of aeroplanes, as well as of seaplanes, for the aerial protection of our naval harbours, oil tanks, and vulnerable points, and also for a general strengthening of our exiguous and inadequate aviation."

(²) "The War in the Air, Official History of the War" (Raleigh). Vol. 1, pp. 480-481.

responsible should do their best for their respective services. No co-ordinating system existed for the proper allocation of our own resources, or of those we might obtain from our allies and neutrals.

In February, 1915, the Cabinet appointed a new Air Committee, under the chairmanship of Lord Derby, in the hope of surmounting the difficulties. The pre-war Air Committee had pursued a career of masterly inactivity—in fact it had not met since the outbreak of hostilities.¹ The new committee served the useful purpose of focussing attention on the *impasse*, but it terminated after the resignation of two chairmen in as many months. Its defect appears to have been that no sanction existed for the execution of its decisions.

The Cabinet then proceeded to appoint (May, 1916) an Air Board under the presidency of Lord Curzon, the Navy and Army being directly represented thereon. A wider scope was given to this Board than to the Air Committee; it was empowered to consider air policy generally, to make recommendations to the departments concerned, and, if necessary, to make reference to the War Committee. The Board also had down for consideration "The Desirability or Possibility, at a future date, of Creating a Single Department under a Single Minister."² Nevertheless, it possessed no executive authority.

By these means, the Cabinet had greatly increased the sphere of investigation. The President duly reported to the War Committee, with a strong recommendation to an increase in their powers, with the result that a second Air Board was appointed.

In January, 1917, Lord Cowdray succeeded Lord Curzon, and shortly afterwards presented the proposals outlining the duties and functions of the Board. The Director of the R.N.A.S. became the Fifth Sea Lord, and the supply of all heavier-than-air machines was completely transferred to the Ministry of Munitions. The Air Board assumed responsibility for the design and allocation of aircraft to the two Services. The Air Board office quickly became an immense organisation.³ The next step was the formation of a fully equipped and independent Air Ministry.

One cannot forget that during the whole of this time a cataclysm of the first order rocked the world to and fro.

By July, 1917, the Air Board's supply of aircraft appeared to be coping with the tremendous demands of the two Services. In fact, the hope arose that soon there might even be a surplus. What should be done with this surplus? How should it be applied? These were questions which the Air Board were not empowered to answer.

Long distance bombing behind the enemy lines, and defence of our

(¹) War Cabinet, Report for the Year 1917. Cd. 9005, p. 57.

(²) Lord Curzon, House of Lords, May 1916.

(³) These figures will illustrate the enormous expansion which took place:—

	Officers and men.	Squadrons.	Eff. Machines.
1914 -	1,844	7	150
End of War	300,000	201	22,000

(SYKES.)

island against attack by heavier-than-air crafts, had developed into important problems. The Zeppelins era had already commenced to wane.

In this manner the President of the Air Board came to state his case to the War Cabinet,¹ and proposed that the Air Board should become a permanent Ministry, that an Air War staff should be formed to consider the problems mentioned above, and that surplus aircraft should be considered as a distinct unit from the air contingent attached to the Expeditionary Force.

Within a month, the Cabinet accepted the proposals, and appointed a Committee to discuss and tabulate details. This Committee styled itself the Air Organisation Committee.

In November, 1917, the Air Force Bill was introduced in the House of Commons. It encountered no opposition of principle in either House, and duly received the royal assent on November 29th.

Naturally, considerable time elapsed before all the arrangements for full executive and administrative duties could be assumed, but the fact remained that we had created a unified air service.

The control of home defence against air raids remained with the Field Marshal commanding the Home Force. The design, production and administration of lighter-than-air craft remained with the Admiralty until this type should become more stable in design. The *personnel* were to be transferred to the Air Force, while remaining with the Admiralty for production and administrative purposes. The final abandonment of the lighter-than-air type after the war, and the recent endeavours to resuscitate it, will be dealt with later.

CHAPTER II.

(a) EMPLOYMENT OF AIRCRAFT IN NAVAL WARFARE.

To discuss the advantages or disadvantages of any particular method of procedure, one must be in a position to define the object to be achieved. Thus, it becomes necessary to examine the use to which aircraft can be put in naval operations.

As has already been pointed out, the British Admiralty of pre-war days had paid most attention to the heavier-than-air craft, whereas the German Admiralty had concentrated upon the lighter-than-air type. With the development of aircraft during and subsequent to the great war, it has been found possible in some cases to substitute the air for the surface craft, and in other cases to amplify and supplement the services of the latter. But it was late in the period of hostilities before the possibilities of the naval air arm were fully appreciated or it began to materialise in conjunction with the Grand Fleet.

⁽¹⁾ In a letter dated July 28, 1917, to General Smuts, the member charged with the general supervision of air matters.

In the Southern commands of the British Isles, the air did to a greater extent come into its own in connection with patrol and convoy work.

The outbreak of war certainly found us less prepared than we might have been, had the progress in the building up of the R.N.A.S. been more rapid; a seaplane in those days generally attracted the interest of the curious rather than the studious. It will be remembered how the submarine scare was ridiculed just prior to August, 1914. Capital ships and blue water were sufficient for England. Then the war, and the unfolding of the submarine drama, while ashore the Army feverishly awaited aeroplanes of all classes. Both weapons introduced that elusive and valuable factor in war—surprise—the one by invisibility, the other by speed.

Nevertheless, the experience gained at sea and on land during the war demonstrates very clearly the uses to which naval aircraft may be put. Generally speaking, the decision to employ naval aircraft in an operation must depend upon whether the objective is naval or, in other words, if its employment conduces to a function or functions for which the Navy exists? These functions have already been lightly referred to above.

There is, however, no reason why on certain occasions naval aircraft should not be employed upon some extraneous duty, as a ship may be called upon to provide a landing party, or rifles, which the Grand Fleet did for the Army in 1914. But in the main they should be at hand ready to assist in the duties of the ship and squadron to which they are attached. It may be best to enumerate these duties, commencing with the use of aircraft with the Battle Fleet, whose primary concern is destruction of an enemy's main force.

Fleet Action.—Early experience in naval flying, pointed to the necessity of having a ship specially fitted out for the accommodation of aircraft, and though capital and other ships during the war did, and do now, carry aircraft, the aircraft-carrier has been developed, until now such vessels are regarded as essential units in any fleet considered modern.

Let us visualise a Battle Fleet in cruising formation at dawn, with a light cruiser screen ahead, and three aircraft-carriers astern of the screen and to windward of the Battle Fleet.

The Admiral in Command orders a three-sector aerial patrol, one ahead and one on each bow.

The first carrier turns head to wind and flies off three reconnaissance machines: she resumes course and increases speed to regain her station.

The other two carriers, which have maintained their station, prepare reconnaissance machines, torpedo planes, and fighters for relief of those out. After a certain interval, the three machines on patrol are relieved by three others from the second carrier. Machines relieved return to their carrier. The position, then, will be—two carriers out of station, and the third in station. While these reconnaissance planes are out, the plane on the starboard bow reports enemy light cruisers in sight. All three planes

at once concentrate and fly past these light cruisers in an endeavour to locate the Battle Fleet.

As soon as the report of enemy light cruisers is received, the third carrier flies off her torpedo planes, while the two other carriers and the battle ships fly off their fighters. All these set off at once to search for the enemy carriers.

Aerial fighting then commences at any moment, while the surface ships are miles out of range.

The three reconnaissance planes have now probably signalled the position, course, speed and other details of the enemy battle fleet. The Admiral of the Battle Fleet will then prepare to deploy, and the carriers get ready the spotting planes, unless they are carried in the line. On deployment those reconnaissance machines already in the air would take up the duty of action look-outs, assisted by other similar machines from the carriers.

Once more we see that offence is the best defence, since if the fighters are flown off in time to prevent enemy aircraft leaving their carriers, an aerial ascendancy is at once established.

It is difficult to appreciate accurately the enormous broadening of the sphere of operations involved in a fleet action which has been introduced by the advent of aircraft. But no nation has openly declared its intention to abandon the construction of the capital ships.

Several details remain to be settled, such as the numbers and types of aircraft, their duties and functions. Indeed, these cannot be settled until a larger service is obtained.

Progress in landing and flying off the carriers has been made, though it is still necessary for the carrier to turn into the wind for the machine to fly off. This points to the necessity of the future carrier possessing a superiority of speed over the battle fleet. The chaotic condition of affairs after a fleet action due to machines trying to land may best be left to the imagination. In 1918 there were 350 machines allotted to the Grand Fleet, so that even a quarter of this number attempting to land in ten carriers would cause considerable disorganisation. Flying off and landing have been simplified, but it is impossible to control a machine rocked from side to side unless the carrier turns into the wind. Circumstances vary the amount of time lost by an aircraft-carrier in performing this evolution. It may be assumed approximately that a loss of station of four to six miles occurs.

Landing takes much longer—probably half hour for six machines, involving 15–20 miles loss, with consequent loss of contact and difficulty of Fleet Commander to combine subsequent operations. Here again between aircraft, carrier *personnel*, and the fleet lies a need for the closest understanding, and the possession of sea sense, as well as air sense.

There are possibilities of minimising the subsequent disorganisation:—

- (a) Use of two carriers in each position.
- (b) Development of air-keeping qualities of reconnaissance machines.

- (c) Shortening of necessary time for flying off.
- (d) Possibility of machines being able to take off whatever direction of the carrier's head and wind.

The employment of aircraft in the fleet action of the future, bristles with possibilities which have scarcely been investigated in practice so far.

It is not considered advisable to elaborate further on the subject, provided that it is realised how vital to the armed force at sea must be the efficient wielding of this new long range weapon.

Recent tactical exercises at sea with surface and air craft, demonstrate the extreme difficulty of an accurate simulation of war conditions. On 7th July, 1922,¹ torpedo planes attacked the Atlantic Fleet off the Isle of Wight. The exercise, though designed as a spectacle rather than a critical experiment, bore out previous experience, which may be summarised as follows :—

- (1) It is very difficult in peace time to create a "war atmosphere," *i.e.*, surprise, etc.²
- (2) No other than "imaginary" resistance can be offered in reply to the attack.
- (3) Despite the intrepidity of the pilots and the full development of the attack, the number of hits obtained on the battle line was small and of minor practical importance.

Use of Aircraft for Scouting and Reconnaissance Work.—Employment of aircraft in this direction may be independent of, or ancillary to, the functions of cruisers.

The principal function of aircraft is strategic reconnaissance. The Germans early recognised this, and allotted such duties generally to senior officers of exceptional experience, so that the information brought back should be trustworthy and not some muddled report of having seen something somewhere at some time which might have been this or might have been that.

Reconnaissance will be considered under three headings :—

- (1) "Strategic reconnaissance" of the enemy—his waters, harbours, minefields, etc.

If undertaken at a distance, this has to be done from the deck of a ship, when difficulties of a return to the ship arise. Directional W/T may be used, but it is liable to be picked up by the enemy. Another difficulty during such reconnaissance flight is that of making an accurate report as

(1) *Vide Press*—Admiralty statement.

(2) Colonel Fuller in "The Reformation of War," pp. 37 and 38, considers surprises under five general headings :—

- (1) Surprise effected by superiority of courage.
- (2) Surprise effected by superiority of movement.
- (3) Surprise effected by superiority of protection.
- (4) Surprise effected by superiority of weapons.
- (5) Surprise effected by superiority of tactics.

to the position of anything suspicious which may have been observed. Aerial navigation still remains a very elementary science.

(2) "Reconnaissance of Enemy Force at Sea."

Necessity for planes to give accurate bearing and formation of a battle fleet, prior to deployment. Compare the quick spinning gyrations in the air to a screen of light cruisers in bad visibility—halting, hesitating, doubtful.

The two "mischances" during the bombardment of Scarborough and Hartlepool on 16th December, 1914, whereby our forces missed joining action with the enemy, are very good examples of the use to which reconnaissance aircraft could be put in naval operations. Moreover, this whole operation exemplifies the additional value which would have accrued from naval *personnel* attached to the aircraft. There appeared to be nothing humanly possible to prevent a meeting—then low visibility and a misunderstood signal, and the "heart-shaking game of Blind Man's Buff" was concluded.¹

Aerial reconnaissance would have made all the difference, though who can tell but that with the present developments in the air, the units of two opposing forces would not have been allowed to approach one another under the weather conditions which then existed.

The need exists for some organised system of search to be applied by these reconnaissance machines. Here perhaps is one of the situations in which the advantage of a separate air service for the Navy would reach its culminating point. Only an observer trained to the sea will make the fullest deduction from some enemy movements shortly before dark, or in the early rays of dawn, when important initial course changes are frequently undertaken or are likely to be first observed.

The aeroplane will probably be found to work a greater change in naval operations than the successive changes involved by the advent of the torpedo boat and, later, the submarine.

(3) "Reconnaissance and Reporting of Enemy Movements during action.

Craft for this purpose have two or more distinct duties—

- (a) Watching of enemy vessels already engaged.
- (b) Reconnaissance further afield for movements of supports, &c., not in sight at time of joining action.

Great difficulty will probably be experienced in determining exactly what each should or should not report, having due regard to the extraordinary congestion on the various W/T lengths. This would appear to be a further reason why both pilot and observer should be primarily trained for the naval service.

Spotting for Ship's Guns.—The experience of the great war demonstrated the fact that kite balloons are very useful when the vessels to which they are attached can get close in shore and overlook the positions

(¹) Chapter XX., "The World Crisis, 1911-1914." Winston S. Churchill.

of targets about two miles off. Further off, they are not of much use for the observation of operations on shore. Their use at sea is similarly limited, though they are good for reconnaissance.

Seaplane carriers occasionally co-operated with fighting ships during the war, and assisted in spotting for the ship's gunfire. Spotting is a duty which requires, as much as any other aerial duty with the fleet, that the pilots and observers should be naval officers. *Liaison*, bombing and fighting may be regarded as purely aerial, though these functions cannot be detached from the remainder, whose sole object must be the annihilation of the enemy force.

There exists the primary need for sympathy between the spotting and control officers to understand each other's work. With the aid of director-firing and plane-spotting, ships are enabled to fire at the enemy, so long as the plane is visible and in communication with the Control Officer of the firing-ship—thus eliminating to a great extent the handicap of low fog or smoke.

Spotting and reconnaissance are absolutely ancillary to the work of the fleet, and need expert observers highly trained in fleet work from day to day.

Bombing.—It is most important to grasp the limitations of the air. We must consider what can actually be accomplished to-day; not the possibilities of a morrow which never dawns. In bombing, the mind must be addressed to the distance of the outward and homeward journey of giant bombers.

Bombing may be divided into two sections:—

(a) High bombing.

(b) Low bombing with light case bombs.

(a) *High Bombing.*—This may be carried out without the aid of surface ships. For such operations, general supremacy of the air is necessary. In high bombing the question is one of aim, not of approach. Recent experiments on the "Agamemnon" gave an average of 6 per cent. direct hits. It would appear that the torpedo plane and light case bomb attack are more to be feared in a fleet action than the high-bombing attack.

(b) *Low bombing with light case bombs.*—The light case bomb is intended to explode under water and so make a hole in the ship. As a torpedo plane has generally to continue on its course over its target, one may say that the propelling machinery of the torpedo is so much superfluous weight, but in a successful attack, a direct impact hit is obtained. With the light case bomb, it is difficult to know what damage is done at what distance—a corollary of depth bomb and submarine.

Attack with light case bombs is at present largely experimental, so that it is unknown whether the torpedo plane attack is better adapted for hitting and in turn looking after itself, than the light case bomb method.¹ Surprise is most important in this form of attack.

⁽¹⁾ In some quarters the light case bomb is regarded as more difficult to resist than the torpedo plane. "Use of Aircraft in Naval Warfare," Davies, p. 13. (Aldershot Military Pamphlets).

The problem for low bombing, as for torpedo plane, is the possibility of getting into position—this requires technical knowledge on the part of the pilot, as where best to attack, and in what manner. Some of the bombs dropped by U.S.N. machines on the ex-dreadnought "Ostfriesland" weighed a ton. Since that time, machines have actually carried a 4,000 lb. bomb, and greater ones could have been lifted. France, Germany,¹ and ourselves, all have powerful aircraft which can be quickly adapted for bombing purposes.

Delay action bombs dropped on or close to a ship may be able to do immense damage. It is understood that this matter is receiving the keen attention of research authorities. A bomb falling on a ship must always be more effective than one falling in the sea, say 20 feet from the ship's side, which results more in the nature of a "push." One ounce of T.N.T. detonated at rest, naked, on a half-inch steel plate, will blow a hole clean through it; whereas a twelve-pounder shell at rest on the plate, exploded with a 1 lb. charge of T.N.T., will leave little or no damage done to the plate.²

Use of Aircraft against an Aerial Raider.—The possibility of aircraft fulfilling a rôle analogous to the German submarine in the great war may be considered.

There are two vital points on the operation of a raider :—

- (a) Point of departure.
- (b) Point of impact or objective.

The corollary to this is the projectile. You try to sink the firing ship and, alternatively, to protect your ship with armour. But never does one attempt to stop a projectile in mid-air! Hence, one must in the case of the aircraft raider (1) attack the carrier or aircraft depot, and (2) limit and protect the likely objectives.

The methods of dealing with the submarine consisted of :—

- (a) Locating her when under water.
- (b) Destroying her.

Submarines in harbour cannot be attacked by submarines, in the manner that aircraft may attack aerodromes.

The problem of the aerial raider is ultimately bound up with that of protection of convoys. Convoys may have to be attended by a carrier, or convoying vessels may carry a seaplane for scouting and protective purposes. It might be advisable, even, as part of our Air war plan, to obtain merchant ships' measurements, with a view to their ability to carry and hoist in-and-out a seaplane.

All raider action depends largely upon circumstances, such as coast line, lines of communication, objective, risks involved, etc. An inter-

(¹) The all-metal Zeppelin "Staaken" confiscated by Aeronautical Commission of Control, and its manufacture forbidden.

(²) The writer is indebted for this information to Mr. F. Martin Hale, the inventor of aerial bombs largely used in the late war.

esting study could be made by investigating the influence which aerial reconnaissance would have exerted upon the activities of the famous German surface raiders. One outstanding conclusion would probably be, the necessity for mobile air units throughout the Empire. Long range aircraft do not, of necessity, enable their possessors to deny the passage of shipping through waters within their range.

Use of Aircraft as Raiders.—The raider "Wolf" carried the seaplane "Wolfchen" on its world cruise in the great war between November, 1916, and February, 1918.¹ A lack of space on board, and necessity to hide the plane, to prevent its disclosing the ship's identity, caused some trouble; but the seaplane was able to hold up merchant steamers, and bring them to "Wolf," bombs being used to enforce orders. She was also extremely useful for reconnaissance in the depredatory work of the raider, and her experiences well illustrate the potentiality of aircraft in this branch of naval operations.

The defence of convoys against one aerial raider should be comparatively easy—but against a determined attack by a really large number, the question assumes a more serious aspect. In the attacks on London by some twenty Gothas, it became necessary for us to have continually ready some eighty to one hundred machines, though very few got into action.² At all events, it may be safely assumed that aerial raiders will participate to a very considerable extent in future naval operations against an enemy's mercantile marine.

Coast Defence, Patrol and Convoy Work.—On the outbreak of the great war a system of coastal patrols was established between the Humber and Thames Estuary, and over the Channel, the latter acting as an escort to the British Expeditionary Force. Patrols were confined, firstly, to the home coast, on account of limitation of equipment, but were afterwards extended. Later came the development of a submarine destruction and detection scheme, and the convoy of ships.

The use of aircraft became general latterly for the following purposes:—

- (a) Anti-submarine work along coast.
- (b) Organised submarine hunts.
- (c) Convoy of ships on the high sea.
- (d) Protection of shipping routes.
- (e) Measures to deny passage of submarines through narrow waters.

In 1915, ten submarines were attacked from the air, and in 1918, 126 were sighted and 93 attacked, which shows the growth and development in the use of aircraft which took place.

Convoy work might easily be undertaken by an ocean-going airship, but she would probably have to carry her own planes for defence against attack. It cannot be forgotten that the system we finally adopted for

(¹) "German Air Force in the Great War," Neumann, p. 277.

(²) See "Aircraft in Warfare," Lanchester, Chapter VI., "The N Square Law in its Application."

convoys became a very effective measure in dealing with the depredations of enemy submarines—a system in which aircraft played a very considerable part.

Towards the middle of 1918, a commencement was made with the mine barrage between Scotland and Norway. At the same time, a very considerable air programme was projected, to utilise aircraft from the Orkneys and Shetlands in conjunction with this barrage. Primarily it was an anti-submarine measure, but hopes were entertained of assisting the northern patrol in its arduous duties.

However, the air scheme was finally abandoned when it was realised that the long nights, the bad weather, and the long distances to be flown, rendered the work beyond the capabilities of existing aircraft.¹

Home Defence.—At the beginning of the war, the R.N.A.S. assumed responsibility for the defence of Great Britain against attacks by hostile aircraft, while the defence of London and other towns was entrusted to an anti-aircraft section of the Admiralty Air Department.

It proved beyond the ability of the Admiralty to undertake such an enormous task at short notice, and a change became necessary.

In 1916 the War Office took over Home Defence. The defence of London alone, as a result of public outcry, really starved the Front of the aeroplanes which were so badly needed for the protection of night bombers and other services. There can be no question of the naval air arm undertaking the duty of home defence. However, the Admiralty may in future be called upon to protect its own shore establishments from aerial attack. Presumably, certain districts would have to be left open to attack.

Use of Aircraft for Anti-submarine Work.—There appear to be three essential needs for aircraft employed on this duty:—

- (a) Need for submarine knowledge.
- (b) Unity of *personnel*, command and administration on the sea, under sea, and over the sea being the ideal.
- (c) The placing and disposal of aircraft for anti-submarine work can best be done in conjunction with that of naval surface craft, and for this purpose there can only be a uniform distribution for fleet and coastal requirements, if the naval air arm is entirely detached from any Department other than the Admiralty.

At the commencement of the great war, as a special precaution for the detection of hostile submarines, the Admiralty supplied a seaplane and airship patrol between the North Foreland and Ostend.²

(¹) "Aerial Co-operation with the Navy," Gordon Shephard Memorial Prize Essay, by Squadron Leader C. H. K. Edmonds, D.S.O., O.B.E., R.A.F., published in *R.U.S.I. Journal*, May, 1921.

(²) "Naval Operations," Vol. I., p. 75. "Official History of the War." See also p. 161.

Throughout the period of hostilities, aircraft were utilised for the detection of submarines.¹

(b) *Types of Aircraft required for the Naval Service.*—A separate air force for the Navy implies separate types of aircraft, or, rather, aircraft definitely allocated for service with the fleet. If the designs of the commercial plane and the service plane are branching away from each other, there appears to be little sign, at present, of a similar break-away in the design of service planes for use over land and sea. The adherents of a unified air service argue that if such is the case, there can be no benefit in the formation of a separate air force for either the navy or the army. They point out that the torpedo plane could be equally useful in discharging bombs, and the reconnaissance machine in reconnoitring over land, and that the only possible exception may be the spotting plane.

In view of these allegations, it may be advantageous to investigate the material at present allotted by the Air Ministry to the Naval Service, and to enumerate the various types, without entering into any technical details.

In February, 1923, the distribution of aircraft was as follows:—

R.A.F. base, Calshot	-	-	1 active service flight, with five boat planes.
School of Naval Co-operation and Aerial Navigation.			8 seaplanes.
Observers' Training School, Lee-on-Solent.			6 Fairey, 3 float planes.
Squadron 210, Gosport	-	-	12 "Dart" ship planes. Three of this type for service as Torpedo Development Flight.
No. 3 Squadron, R.A.F.-	-	-	12 "Walrus" machines.
R.A.F. Base, Leuchars (Fife)-			6 "Nightjar" ship planes. 12 "Panthers."
Mediterranean	-	-	5 F., 2 A. machines.
H.M.S. "Pegasus"	-	-	6 Fairey float planes.

The aircraft-carriers are the property of the Admiralty, and are manned by naval officers and ratings.

"Ark Royal"	}	In commission.
"Argus"		
"Pegasus"		
"Eagle"	}	Paid off.
"Furious"		
"Hermes"	-	Completing at Devonport.

Under the Washington Treaty, we are still entitled to build one more aircraft-carrier.

The trend of naval aircraft design is towards greater power and

(¹) The writer hoped to obtain access to certain War Records on this matter, but was unable to do so.

wider range, with a view to meeting the needs requisite for the manifold duties of the Fleet.

Torpedo Planes.—This type appears likely to develop into the greatest value for the naval service. During the war, the type was rather neglected; for ourselves, we seldom had a target offered, and for the Germans, one may surmise that our squadrons and bases were too far off.

The modern torpedo plane carries one torpedo with a 320 lb. war-head, which may certainly be increased in the near future to perhaps 500 lb.

One squadron consists of 12 machines. Planes attack in groups of three, and it is necessary to be within 10–15 feet of the sea surface, and within a mile of one's target before releasing the torpedo. Good results have been obtained from attacks under these conditions, but, as already mentioned, the war atmosphere has always been absent.

The group attacks "head on" to its target, and by the time it has got into position it has practically become a surface formation, with the corresponding disadvantage.

Attacks by torpedo planes can be assisted by a smoke screen put up by preceding planes which drop smoke bombs—a complicated operation. The torpedo plane should be of great service in attack on enemy aircraft-carriers prior to the contact of the main fleets.

An interesting demonstration of a torpedo-plane was recently given in the Humber by the Blackburn Aeroplane Company. The type was a Blackburn Swift fitted with a Napier Lion engine (450 h.p.)—a type distinct from the Blackburn Dart, which is exclusively supplied to the Air Ministry, and whose performance figures are confidential. It is understood that the same Company are producing an improvement on the Dart, to take 1,000 h.p. Napier Cub engine.

The Swift is a biplane designed to carry a torpedo of 1,500 lbs., has a climb of 750 feet per minute, a ceiling of 15,000 feet, and cruising speed of 90 miles per hour, with a maximum of 120 miles per hour. Diving to the attack, such a machine attains a speed of about 140 miles per hour. Though it should be possible to meet a torpedo plane attack with the 6-inch battery or lesser calibre, a very real danger exists in a surprise attack.

Reconnaissance Planes.—Various types for rapid reconnaissance.

Giant Bombers.—This type is almost exclusively of use for night work, on account of speed, manœuvrability and climbing power, great weight, and consequent inability to avoid attack. They have the advantage of large radius of action and carriage of bombs, and are the Dreadnoughts of their type.

It is generally conceded that the air is better for flying by night because the atmosphere is usually calmer and possesses great lifting power. Darkness is a pall that falls over friend and foe alike, but the periods of darkness favour the escape of the giant plane.

Fighters.—The function of fighters is to attack the enemy machines, before leaving their carriers, if possible. Armament consists of machine gun and bomb.

The difference between sea and land air-warfare lies in the fact that at sea all planes will probably be concentrated within a well-defined area, and therefore a greater possibility will exist of one side or the other obtaining a complete mastery in the air. Thus, a most energetic air push must be undertaken at the earliest possible moment—and on the mastery of the air may greatly depend the course of events when the clash of heavy forces occurs. The air danger at sea cannot be put into the four corners of a formula, any more than it can on shore.

Fighters are a most essential feature to protect reconnaissance and spotting planes, as well as to attack enemy fighters.

Spotters.—These machines are specially equipped and manned for carrying out gun spotting duties with the main fleet. This requires considerable experience, in view of the developments in the direction of fleet fire concentration.

Airships.—In 1914 we possessed five small airships, and in March, 1915, the first of the "S.S." type appeared, whereas the German navy had at this time twelve airships, all manned by well-trained crews, four of which were immediately available for attacks on England.¹

At first, the overwhelming superiority of the Zeppelin to anything we possessed, the subsequent successful attacks on them by our fighters and the suspended or curtailed activity of airships caused by the creation of the Air Ministry, all tended during the war to befog the issue with regard to the future of this type.

In 1920 the Admiralty, in conjunction with the Air Ministry, came to the conclusion that on account of financial stringency, it was not desirable to proceed further with airships. Since that date, the whole subject has been reviewed *de novo* in connection with the Burney Airship scheme, and a strong feeling exists for the revival of the airship for long distance reconnaissance work. There appears to be little doubt that an Imperial air route may be more easily developed by airships than aeroplanes. The strategic, commercial, and political advantages which would ensue from such a scheme would be of the greatest value to the Empire.

Airships have many inherent disadvantages for warlike operations :—

- (1) Slow speed with a low ceiling.
- (2) Conspicuity and ease of discovery
- (3) Vulnerability.
- (4) Large *personnel* required to man and tend.
- (5) Expense.
- (6) Difficulties connected with moving.

(¹) Von Ingenohl's Memorandum on "Future Employment of the Naval Forces" is printed in full as Appendix 4 to "Der Krieg zur See," Vol. III.

Their advantages over the heavier-than-air craft are chiefly :—

- (1) Large radius of action.
- (2) Ability to remain practically stationary.
- (3) Greater carrying capacity.

It has been calculated that an airship of 150 tons displacement, carrying no cargo, would have a range of 11,500 miles at a speed of 80 miles per hour; and at 40 miles per hour, a range of 24,000 miles, being in the air for 25 days.

For patrol duties, the airship would have a greater endurance than the light cruiser, would spend less time away for re-fuelling, and have a larger horizon. A light cruiser to cover the same area, would cost seventy times as much, while its capital cost would be six times that of the airship. As the Admiralty have officially sponsored the Burney scheme, it may be assumed that some projected use of airships exists in Admiralty plans.

We may see the development of airships as aerial bases for aeroplanes,¹ the petrol supplies being transported to the airship by submarines.

Hitherto, no operations have taken place, so far as is known, involving submarines, airships and planes in co-operation, although seamanship and airmanship have much in common.

The value of airships for carrying troops and mails should be considered, but whether they could at present take over the duties of ocean patrol and light cruisers seems questionable, on account of their vulnerability. They might even fall a victim to a plane launched from the deck of a submarine.

Distance Control Boats.—(Ferlenkboot). Off the Belgian coast, a seaplane or aeroplane used to accompany these craft, to wireless back to shore stations the direction, etc., of target.

So far as is known, no very great progress has been made with this type since the War.

The vulnerability of an airship, as is well known, is due to extreme inflammability of the gas; but it may be possible one day to discover some gas, such as helium, which, while being non-inflammable, can be produced at reasonable cost. Despite this present disability, the adherents of the airship point out that only six Zeppelins were destroyed in the North Sea, 1914–1918, whilst the information they gleaned was of priceless value to the Germans.

Submarine Aircraft-carriers.—The surface aircraft-carrier we know; we can readily appreciate its value, but the submersible aircraft-carrier has still to make its *début*. Such a vessel would be capable of submerging and arriving off the enemy coast at night, and would combine those valuable qualities possessed respectively by the submarine and aeroplane.

(¹) The experiment of carrying a plane on an airship has been successfully tried in this country. It is understood that the U.S.A. are constructing an airship-carrier.

The difficulties experienced by the German submarines in the Pentland Firth¹ are known, but a very different picture presents itself when one ventures to surmise the potential damage which a submersible aircraft-carrier in the Fair Island channel could have inflicted upon the grand Fleet at Scapa Flow. After delivering their attack, machines would have flown back to German waters, or to some rendezvous agreed upon previously with the carrier.

CHAPTER III.

PERSONNEL.

Without entering into minute details, it is generally conceded that a naval officer's early training is of such a nature as to enable him to become in a short space of time an efficient and successful air pilot. The modern ship of war necessitates an intimate knowledge of machinery, and the sea life engenders a spirit of watchfulness and observation. As a consequence of these facts, the partisans of the separate air force assert that the Admiralty have the *personnel* at hand, ready to be trained for air duties connected with the fleet.

At present, the Air Ministry, in addition to providing the machines, also provide the *personnel* for them, pilots and mechanics. The Admiralty since the war have nominated a certain number of naval officers to undergo an Observer's course,² with a view to their qualification as such. These officers form a specialist R.N. branch similar to specialists in other subjects. The courses last about seven months, and consist of a two months' preliminary training at the naval schools in gunnery and signals, followed by a five months' course at the Seaplane Training School at Lee-on-Solent. After qualification, officers are eligible for appointment as Observers in the aircraft-carriers, and receive special pay as such. After a period in the carriers, a further course is taken for confirmation of the specialist qualification.

The Admiralty attach great importance to this training, and consider that the future development of gunnery depends to a large extent on the efficiency of observation from the air.

In addition, on the introduction of the Navy Estimates, 1923-1924, the First Lord of the Admiralty announced in the House of Commons that the Board were retaining a certain number of officers and men, surplus to establishment, in anticipation of a Cabinet decision that the Navy should have its own air arm.

Still later in the year, July, 1923, the Committee of Imperial Defence announced through the Cabinet the new proposals with regard to providing an efficient naval air arm. It will be remembered that naval officers are to be "seconded,"³ though the Air Ministry are to remain, as

(¹) "Der Krieg zur See, 1914-1918. Nord See," Vol. II., Chapter I.

(²) A.F.O. (289/21) (3502/21), and various.

(³) The prefatory note by the Main Committee (Cmd. 1938) states a preference for the term "attached."

hitherto, in control. As is well known, it is this control which forms so succulent a bone of contention. At all events, this new scheme does admit that the naval officer is a suitable and proper person to fly machines required for naval purposes, that he can be so trained and that his having carried out these duties is no bar to progress in his future career as a naval officer. The most ardent partisan of the separate air force could have hoped for no fuller or better acquiescence in his views with regard to *personnel*.

Presumably these pilots will become lieutenants (A) similar to lieutenants (G), (T), etc., and will revert to ordinary duties after the expiry of certain fixed periods, returning at intervals for senior technical or administrative posts in connection with naval aircraft.

With a separate naval air arm would come the need for aircraft mechanics. However, the supply should occasion no difficulty either to naval establishments or the existing R.A.F. schools.

One prominent feature stands out with regard to any future scheme for the training of officers and men: the country is in no financial mood, nor likely to be for a long time, to incur any heavy new expenditure in this direction.

ADMINISTRATION : RESEARCH.

In the event of the Government re-considering their decision and deciding in favour of a separate air force for the Navy, attention will be focussed upon the administration of this force. The immediate administration will naturally be carried out by the Admiralty, but a close *liaison* will need to exist between the Admiralty Air Department and the R.A.F. for the complete and harmonious development of *personnel* and material, together with their uses and distribution. There appears to be no ostensible reason why this could not be achieved.

Invention and research in connection with aircraft are of the greatest importance. In ordnance matters, Woolwich and the experimental gunnery departments of the Army and Navy work smoothly together, and the same happy state of affairs could exist with regard to aircraft.

In spite of latter-day developments, the original need for a unified air-service arose from difficulties connected with material: such difficulties were entirely disconnected with the *personnel* proper.

CO-OPERATION.

At the time that the formation of the Air Ministry was thought to be vital to our needs (and it certainly did remedy some serious defects) certain difficulties arose from its creation which perhaps would have received greater consideration had the change occurred in less anxious times. Not least amongst these difficulties is the problem of efficient co-operation between the various forces maintained by the State.

With or without a separate Air Force, the Navy will always need to consider the possibility of co-operation with the military and aerial forces of this country or her allies.

History, from which we obtain pointers for so many of our problems, has much of interest to tell us about co-operation. From time immemorial, the successful issue of a war has foundered on the rock of co-operation, or rather, failure to co-operate, caused by misunderstanding, jealousy or other causes. Not only is this true of the forces of the same nation, but also in the sphere of co-operation between allied nations.¹

The Turkish Expedition to Malta in 1565 failed through the jealousy of Mustapha, the General, and Piali, the Admiral. Later, in India, the affairs of Dupleix-La Bourdonais and Lally-D'Ache may be mentioned.

Even the great Napoleon himself lacked the full prescience of the value of co-operation. The lesson, therefore, appears to be obvious. The possibility of failure through this agency must be cut down to a minimum, and this can only be effected by training the forces for war together in peace time in the closest possible harmony. With three different Departments of State acting together in an operation, is there not a greater prospect of failure, than with only two?

The history of our own time, in the great war, will not hold us guiltless of failure to co-operate, viz., in such cases as the inertia of the Salonika force, or the failure to make a contemporaneous attack on the Dardanelles.

In Gallipoli, 1915, the R.N.A.S. carried out all air work with the Army and Navy, and clearly demonstrated the utility of aerial co-operation. Torpedo planes functioned in this campaign for the first time in warfare, and succeeded in destroying three ships in the Dardanelles; and the aerial photographs obtained were extremely useful for map correcting. Nevertheless, it is probable that had there been more cohesion and better organisation, the Allied Powers could have forced the Straits and taken Constantinople.² During the great war, with the rapid march of events, we were unable to visualise the true functions of a naval air service. There is no naval air history, and therefore little or no doctrine.

The survey of this subject leads to the question of a Ministry of Defence, or Minister of Defence, and it may be noted that the problem has been anticipated by the report to the Cabinet recently issued. We have seen this question, in a different guise, in the unified command of the allied armies. In a combined naval and military operation, the Fleet transports the troops, lands them, and keeps open the lines of communications, while the army proceeds to its objective. The operation is combined, but it is, or should be, a matter of comparatively easy staffwork to define, if necessary, the line of demarkation in the duties of the naval and military forces employed. But where in such an operation is the line of demarkation between the duties of the Fleet and the naval air arm? Such duties comprise not only the protection of the main force, but also

(1) Lecture on "Co-operation," by Admiral Richmond, *R.U.S.I. Journal*, August, 1923.

(2) "Aviation in Peace and War," Sykes, pp. 49, 71.

anti-submarine, convoy, reconnaissance and other measures which may be of an aerial nature one moment, and naval the next.

It is scarcely possible to conceive any future combined operation to be carried out overseas, in which general aerial supremacy has not first been gained. The degree to which naval aerial forces may be employed must, of course, vary with the existing circumstances.

Nevertheless, it is not impracticable to visualise a combined naval and military operation in which the fleet aircraft alone may succeed in establishing this requisite supremacy, in addition to their purely naval duties. The employment of a system which entails needless co-operation can only invite the opportunity of making confusion worse confounded.

With the advent of fighting in the air, one must be prepared to consider all fighting, whether on land, sea, or in the air, as a conjoint operation. Unnecessary decentralisation frequently becomes the parent of subsequent co-operation.

The purposes for which aircraft may be used in co-operation with the Fleet have already been discussed. The writer maintains that these services are of so important and highly technical a nature as to demand a separate force continually under the direct supervision and responsibility of the Admiralty. Otherwise, one is faced with the chance of needless co-operation.

With the present development of aircraft, the prospect exists of an aerial campaign overseas, where the Fleet is to carry the Air Force to the scene of operations and act as the carrier and protector of the lines of communication, in the manner it has so often done to the Army.

Geographical circumstances, and enemy air strength, may easily render it difficult to define with any degree of precision where Air Force action and Naval action meet. There are the questions of bases, of the enemy's aerial strength, and of our own objective.

Is aerial supremacy along the lines of communication to be guaranteed previously by the Air Ministry?

The transport of a large aerial bombing force overseas would have to be undertaken, presumably, by the Navy. In such a case, the question is one of naval co-operation with the Air Force, rather than aerial co-operation with the Navy. Arrived at their selected base, this aerial force should be free to prosecute the work in hand, whilst the ships, provided with their own air arm, should be able to develop their own particular line of strategy. No useful purpose can be served by peeping into the dim and distant future when an overseas aerial expedition can set out without the co-operation of surface craft. Irrespective of the question of providing the naval air arm, such naval-aerial co-operation will require the very best staffwork which can be obtained.

It is not, and never has been so far as the writer is aware, the contention of the Admiralty that long distance bombing inland should be undertaken by the naval flying service, despite the fact that the R.N.A.S. at the commencement of the great war, developed its maximum efficiency in this direction.

Again, what lien is an Air Ministry to possess over aircraft-carriers controlled by the Admiralty? The tonnage of aircraft-carriers has been limited by the Washington Conference, and thus the craft are regarded internationally as an integral part of a nation's naval forces. The improvisation of aircraft-carriers on the outbreak of war must either be undertaken by the Admiralty, or by a species of Marine Department of the Air Ministry.

The pursuance of this problem *in extenso* lifts the subject of this essay out of a mere departmental controversy on to the plane of a discussion as to Cabinet control, and therefore as to the basic principles of our Constitution. Fortunately, the Prime Minister has promised a day for the debate of this matter in the next session, though it will then be too late to examine in this paper any suggestions which may be made.

It is the considered opinion of the writer that the crux of the whole problem with which we are dealing, centres in the question of co-operation. Behind is a mass of subsidiary detail which, sooner or later, will resolve itself into the most suitable and economic form.

The report of the Sub-Committee, and the covering note of the main Committee of Imperial Defence, grant certain concessions to the Admiralty; but the main fact is that the Government stand by the decision to maintain a single Air Service.¹

The strengthening of the position of the Main Committee and its Chairman, and the co-operation of the chiefs of the naval, military and air staffs, have all arisen out of the discussion of the future relationship of seamen and airmen.

It has even been proposed to go still further, and appoint as supreme head of this staff a Super Chief of Staff, who would in wartime become a species of War Lord or Dictator. History has taught us what happened in Germany with a supreme War Lord. Its navy lost any chance of ultimate success through such methods, which generally imply that the *personæ gratae* with the Supreme Chief obtain the most favourable audiences.

CHAPTER IV.

POLICY AND ADMINISTRATION ADOPTED BY THE PRINCIPAL FOREIGN NATIONS.²

It cannot, perhaps, be considered out of place to make some passing reference as to how other great nations are treating the association of forces of sea and air.

America.—The army and navy have their own flying services. As already stated, Great Britain is the only country with a unified air service.

In the official report of the Committee appointed by the President

(¹) Official Report, Parliamentary Debates, 1727, 2nd August, 1923.

(²) The writer is indebted for much of this information to the Naval Correspondent of *The Morning Post*, in his article on "Imperial Defence," 2nd May, 1923.

of the U.S.A. to enquire into the general aviation question, the opinion was expressed that "Aviation is inseparable from national defence. It is necessary to the success of both Army and Navy. Each should have complete control of the character and operations of its own Air Service."

Naturally it is, or should be, possible to produce powerful arguments for any line of policy adopted by a great nation in matters of defence. Nevertheless, the case for a separate air force for the navy has been very succinctly expressed in a letter from the Acting Secretary of State to the Air President of the Council:—

"Naval training and qualifications are so closely woven into the attributes which make a successful naval aviator that to divorce his schooling from the direct naval association is considered most detrimental to the Navy's interest An efficient naval aviator must be thoroughly trained in all naval subjects, including ordnance, gunnery, scouting, tactics, technical movements of the Fleet His duties will continue to be closely associated with the tactics and strategy of the Fleet, and require an intimate knowledge of sea conditions and naval warfare. The actual piloting and manipulating of the 'plane represents only a small element of the work and experience required of him. The closest co-operation required between battleships, cruisers, submarines, destroyers and the Air Force, will require a knowledge which can be gained only by service connection with all the various elements which go to make up the Navy."

In conclusion, it should be pointed out that civil aviation receives every encouragement from a department analogous to our Board of Trade. Moreover, commercial aviation in the U.S.A., unhampered by departmental restrictions, does exhibit some sign of sturdy growth.

France.—The naval and military air services are likewise under the control of their Admiralty and War Office respectively. Civil aviation is controlled by the Under-Secretary of State for Aeronautics, who co-ordinates the technical requirements of all flying Services through the Ministry of Public Works. This official is also the president of the aeronautical section of the Council of National Defence, of which the chiefs of the naval and military general staffs are members.¹

Italy.—At the time of writing, the present and future prospects of aviation in connection with the Services are rather obscure.

The Cabinet of Signor Mussolini declared aviation in the Services to be thoroughly inefficient, with the one exception of the naval air service. A Royal Decree followed, placing all the air services under a High Commissioner. However, it is not considered that anything useful can be learned from existing Italian methods.

Japan.—The policy adopted closely resembles that adopted by the U.S.A. and France. The destruction caused by the earthquakes in Tokio

(¹) Cf. the proposed re-constitution of our own Committee of Imperial Defence.

and Yokohama has completely altered the position of Japan, temporarily, as a world Power.

CIVIL AVIATION.

The subject of commercial flying may seem irrelevant in this essay but its importance is such that some mention must be made of it.

The Navy was evolved out of the Mercantile Marine and the conception of an Air Force should, similarly, evolve from commercial aviation. However, as commercial aviation is a long way off, then it may be assumed that the true conception of the Air Force is still further off. If this argument is good, our dilemma must be surmounted by having an Air Force of suitable size, and flying arms for the Army and Navy.

Aviation in and around the British Isles is not yet a practical commercial proposition and no amount of State subsidy will make it so. We cannot afford to pour money into an industry with no return. Equally, we cannot afford with our responsibilities to wait until commerce "flies by itself." A subsidy scheme has recently been introduced and one can only hope that this will bring about the desired result.

If our islands lay within the tropics, commercial aviation might already be thriving, but the man in the street does not regard flying as a safe and practical method of transport in the vagaries of our climate. Propaganda may do a great deal, but it cannot yet cope with meteorology.

A further disadvantage of civil aviation in the United Kingdom is the distance of aerodromes from the large cities. Take, for instance, the Manchester-London journey. In both cities, the railway stations are almost in the centre of the city and the journey by rail occupies $3\frac{1}{2}$ to 4 hours. By air, the journey takes two hours; Croydon is three quarters of an hour from the City, and the Manchester aerodrome is twenty miles off.

France subsidises commercial machines fulfilling certain definite military requirements, but it is doubtful if this is sound policy.

In the United States, commercial aviation, aided by the climate, does "fly by itself," or in other words has established its economic independence. The entire coast-line is almost completely girdled by flying-boat routes, and a service is maintained between Florida and the Bahamas and Cuba.

The tendency of the present day in the civil aviation of all countries is to extend the long international routes, viz., the German route from Berlin to Moscow, a distance of 1,100 miles; and our own route from Cologne to Prague.

It has recently been proposed in this country to build an aircraft-carrying merchant vessel, not as a supplement to naval Services but as a special development of the mercantile marine.¹

Transport by sea and transport by air are so closely allied that any

(¹) Institution of Naval Architects' meeting, 21st March, 1923.

development of such a scheme might be well worthy of the closest study and assistance on the part of the Admiralty. Whether such proposals could be extended to any but specially constructed merchant vessels, must depend upon the ease whereby a plane may rise from and alight on a ship's deck in the case of machines other than seaplanes.

CONCLUSION

In the course of this essay, certain facts have been stated and certain conclusions drawn. These, together with other alleged advantages or disadvantages, will be summarised briefly.

Advantages.

- (1) Flying, by 1918, had developed on the lines of—
 - (a) Naval co-operation.
 - (b) Military co-operation.
 - (c) Strategic use of aircraft.

With regard to naval co-operation, the future had then become difficult to foretell, and this is still more the case to-day.

Among the many factors may be enumerated range, speed, climb, manœuvrability, armament, armour, gas, defence, reconnaissance, anti-submarine work, minelaying, and fleet duties generally. These factors have been dealt with, so that it will suffice to merely mention them in this section. They do, however, tend to lead one to the conclusion that the business of naval flying should be managed by naval authorities.

- (2) An advantage in a separate air arm is claimed in connection with—

Doctrine.

Whole-hearted support and *liaison*.

A common *personnel* with a common elementary training.

Esprit de corps.

Intelligence concerning foreign developments—*i.e.*, fire-control, etc.

- (3) Pilots do not continue flying for ever. After their period of flying, they can again be absorbed in the general service R.N. This might avoid the present necessity of enrolling civilians on short service commissions in the R.A.F. Naval pilots would know that they were not part of a force temporarily divorced from their own corps, and allied to a force serving under an Admiral, General, or Air Marshal. Moreover, it has been estimated that an annual saving of £80,000 would be effected by a combination of naval and air force duties in aircraft-carriers, if the *personnel* were completely naval.¹

- (4) Naval depôts already exist all over the world, and arrangements could easily be made whereby the existing organisation might be extended

(¹) Correspondence in *The Times*, 19th, 21st, and 23rd July, 1923.

to include suitable supplies, etc., being kept ready for the Naval Air Service.

There can be no reason in our following slavishly what is being done in other countries, in none of which exist responsibilities similar to those which our world-wide Empire has thrust upon us. Moreover, the seaplane or flying boat would appear to be the machine *par excellence* for the majority of naval airwork outside the possible spheres of a general fleet action.

(5) It is generally recognised that the declaration of, and active participation in, hostilities will proceed one another instantaneously in the next war. In old times, a thirty years' war was needed to exhaust a nation; nowadays, chemical and aerial warfare should be able to achieve this in as many days. If all the flying *personnel* and material are under an Air Ministry, is there not a danger of this Ministry gambling with or robbing the naval units with a view to replacement later when an opportunity may occur?

It is even the contention, open and avowed, of the supporters of the present *régime* that the whole of our air forces, independent, naval, military and commercial, would have to be available to attain air supremacy in the opening phases of the next struggle.¹ The reasons given being—

- (a) Our lack of conscription.
- (b) The need of providing an air force for a large empire.
- (c) Financial considerations.

This argument develops on the further lines that the naval and military wings cannot be available if they have become so specialised under separate control that they are unfitted, either on account of technical divergence or through lack of appropriate training, to form part of the air fleet. Surely these two very reasons—technical divergence and lack of appropriate training—are two most cogent and relevant causes of the desire of the Admiralty to possess and control its own air service.

Unfortunately for the taxpayer, strategical needs have never been subservient to financial considerations. If, as an Empire, strategy dictates the necessity of a large independent air force and separate air arms for the Army and Navy, no amount of financial considerations can alter the fact. Whether we can afford, and whether we are willing to spend, the requisite sum of money is another question. Nevertheless, whatever is done, should be done on right lines.

(6) The establishment of a separate air force for the Navy (and the Army) would leave the Air Ministry free to develop along its own lines, for which there is ample scope—

- (a) Aerial expansion for war.
- (b) Administration of its forces.
- (c) Research, investigation, design, construction and instruction.

(7) The economic aspect is rather apt to be overlooked. If the

(¹) Second Report from the Select Committee on Air Estimates, 1923.

Admiralty possessed their own air service, it would develop a tendency gradually to employ aircraft in substitution of surface ships for special duties. After the discovery that aircraft can be used in such cases, development must follow.

Disadvantages

(1) Critics state that "splitting" would be a retrograde step, and would open up all the old sores and petty jealousies, creating strategic differences and difficulties, and starting anew the old competition for material.

This charge may best be answered by stating that strategic differences and difficulties will always arise under any conditions. With regard to the competition for material, our lessons in the past should be sufficiently bitter to prevent any similar repetition in the future.

(2) A disadvantage is alleged, in the event of the Navy and Army getting control of their air services in the possible fear that the need for an independent air force might be lost sight of, and the remnants of the R.A.F. gradually swallowed up first by one and then the other. In fact, one ex-Air Minister, Lord Rothermere, has publicly advocated the abolition of the Air Ministry. As has already been pointed out, there are certain primary functions of an independent air force which must be kept in sight.

This controversy is the cause of impassioned letters to the Press, such as that headed "Integrity of the Air,"—though what is really meant is "Integrity of the Air Force." Many will no doubt recall the shibboleth of "Unity of the Sea."

It may be readily imagined how the opponents of a separate air force for the Navy view this question. Like a mother bird, they see their fledglings one by one leaving the nest. Moreover, they feel that the support and interest which the two older Services must necessarily take in the younger Service under present conditions, would not be forthcoming—in fact, would be transferred to its own flying organisation. As a matter of fact, the effect might be exactly the contrary.

(3) Another disadvantage might be the lack of any definite policy of organised expansion on the part of the Admiralty.

In the early days of the R.F.C. and R.N.A.S., the development of the naval wing was due rather to individual effort than to Admiralty policy. War experience has shown that the functions of the naval wing are more difficult to perform than those of the military wing. Coupled with this experience, we find the allegation of the officer in command of the R.N.A.S. in Gallipoli, that the Admiralty were slow in evolving a clear scheme of employment and a definite objective.¹

(4) The main difficulty in the higher organisation of the old *régime* lay in the lack of co-operation between the two wings, and their competition for the supply of men and machines.¹

(¹) "Aviation in Peace and War," Sykes, p. 32.

The result led to the formation of the Air Board in May, 1916. This disability has already been described.

(5) In the discussion in the House of Commons on the Air Force Estimates, 1923, a Member stated that the formation of a separate Naval Air Service would deprive a large number of officers and men serving in it from obtaining any general experience of air work, and thereby reduce the number available to qualify in an Air Staff College. Further, that the number available for a reserve of pilots would become very much reduced.

It cannot be argued that these difficulties are insurmountable in view of the evolution of Staff Training and the development of Civil Aviation.

(6) If the war taught amalgamation, why should there be disintegration now?

Amalgamation did bring various groups under one central authority, and thenceforward it became possible to enunciate and carry through a general *modus operandi*. Nevertheless, the amalgamation took place in a period of intense strain, when the immediate present was of more moment than any future period. As has already been pointed out, the amalgamation resulted primarily from the urgent necessity to co-ordinate supplies of aircraft.

(7) There is the question of duplication of training. It must be admitted that the question of training does require a lot of careful thought, so as to prevent overlapping and waste of *personnel*.

(8) When and why has the Admiralty turned *volte face* to the expressed policy of 1920?

"Notes on Naval Policy" accompanied the Naval Estimates for 1920-1921, and contained the following passage:—

"To remove all misconception it should be stated with emphasis that we in no way contemplate a return to a separate Naval Air Service. It is recognised that the Air Ministry was created by Parliament as a result of war experience."

(9) The establishment of a Naval Air Service would delay still further the time when all armed forces may be placed under a Ministry or Minister of Defence.

Attention has already been directed to the matter in connection with Cabinet control of Departments.



SOUTH AFRICA.

By CAPTAIN H. BIRCH REYNARDSON.

ONCE in every few years the British public is reminded of the British Empire.

Imperial conferences might truly be said to be worth while if they served no other purpose than to make the men and women of Great Britain realise periodically that there exists a British commonwealth of nations.

To England, to this little island on the outer edges of Europe, to this old London on the Thames, come the representatives of great nations from far off And beyond the idle, human curiosity for names and appearances and personalities, there arises another and a greater interest—as to why these nations send their great men to London and how it comes that this island is the centre of an empire.

The imperial conference of 1923 has emphasised the supreme importance of this interest. It has shown that more than ever now is it essential that a broad-minded sympathy and understanding should exist: an appreciation of the various interests and aims of the component nations of our empire, without which a satisfactory imperial policy can never be framed. But the basis of such sympathy and understanding can rest only on a knowledge and an appreciation of past history; and their development will depend on what manner of answer is given to those questions—How and Why?

In presenting an historical sketch of the relations between Great Britain and what is now the Dominion of South Africa, the writer proposes to indicate no analogies, to trace no parallels, to point no morals, in the belief that in this history are exemplified theories of government, traits of our national psychology, tricks of public and political sentiment sufficiently typical: and that from the *ensemble* emerge many principles which are obvious in their application to that series of diverse problems which afflict the British Empire from Ireland to Irak.

The story opens in 1795. Due rather to the chances of political confusion in Europe than to the prowess of British arms in South Africa, a small force, under General Craig, took possession of Cape Town, and the first occupation of the Cape Colony was effected. It was not to endure long; for by the peace of Amiens in 1803 our conquests in South Africa were restored to the Netherlands in the following year. However, again there was to be a change of ownership. The peace of Amiens was but an interval for breath, and the continuance of the war in Europe resulted in the reconquest of the Cape in 1806.

Until 1814 it was regarded more in the light of a conquest, the ultimate possession of which only the fortunes of the European war could

determine. But after peace had been declared in this year it was definitely ceded to Great Britain, the Netherlands accepting six millions sterling in exchange.

The period from 1806 to 1835 is one of peculiar interest to the student of South African history, for between these dates appeared the first signs of those divergences and misunderstandings which were to lead to so many troubles in later days. Whatever we may think of the motives which guided British policy, its methods were often remarkably tactless.

The native question—that rock on which the British and Dutch peoples were cleft asunder—was soon in evidence. The new brooms persisted in their new opinions, guided thereto by the enlightened sentiments of Europe; the old colonists clung to theirs and quoted the hard lessons of experience. And gradually these differences of opinion ripened into irreconcilable and incompatable ambitions, on one side supported and often realised, by the power conferred by Government; on the other side suppressed till they became inflamed grievances. It is difficult to enumerate these grievances, to give the exact causes, to point to the precise chapter and verse for easy reference, but some incidents may be quoted which largely contributed to the intense unpopularity of British administration.

About 1820 a considerable number of state-aided emigrants had been sent out from England. Before then, the colonists outside Capetown had been almost exclusively Dutch; conditions now began to alter and it became evident that the Englishman, with his peculiar ideas and strange customs, was rapidly spreading over the land. The change from the old order to a new is generally a difficult period and is apt to be an unpleasant process, particularly to a highly conservative people; the problem was made no easier by the imperial government. It was suddenly announced that after January 1st, 1825, all official documents, and after 8th January, 1828, all proceedings in courts of law, should be in English. In spite of many requests to the government to annul this order, no attention was paid and English became the official language.

Again, the decision to abolish slavery in Cape Colony, right as it was in itself, was enforced with very little attention to local conditions. The restrictive measures, put into force before the final act of emancipation was passed, led to much unnecessary friction, and the final inadequacy of compensation and the manner in which it was ruled that this was to be secured, were naturally provocative of intense resentment. The colonists, especially the Dutch, who still formed the large majority, were growing weary of the philanthropists and missionaries who in an increasing degree seemed to dictate their policy to the imperial government, and it must be confessed that they had some reason for their bitterness. The truth as regards the native questions of the day lay somewhere midway between the Dutch view and the view held by the missionaries. Both views were wrong, both extreme: but men such as Dr. Philip, though high minded, were also high handed, and if it be granted that they were possessed of a singleness of aim it must be

owned that their range of vision was small. The British government failed to appreciate this. At home the missionary societies were powerful and the story which their representatives brought back was accepted as the whole truth, often in preference to the more official version, always at the expense of Dutch denials and protests.

In 1835 the Kaffir war had come to an end. Since 1799 there had been five campaigns of this long and troublesome series, all with the same object, namely, to prevent the incursion into the east of the colony of the Kosas, a Bantu tribe, who, it may be added, were as much foreigners to South Africa as the Dutch or English. Always the dispute had been the fixing of some tenable boundary; always the wars had been inconclusive; again and again the Kosas had returned to raid and kill in the debatable territory between the Kei Skamma and Fish rivers and beyond. Sir Benjamin D'Urban's settlement in 1835 was almost universally approved by the colonists. Colonial territory was extended to the Kei river under the title of the province of Queen Adelaide; many of the defeated Kosas, having tendered their submission, were allowed to return to their homes there, but as British subjects living in definitely British territory. At last it seemed that a statesmanlike solution of the problem had been effected. But it was disallowed. Lord Glenelg objected, as a Whig, to any extension of territory, in that it seemed to him a contribution to the systematic injustice to which Dr. Philip persuaded him the Kosas had been subjected. In December, 1835, the British government announced that the sovereignty over the country lately annexed would be withdrawn, as "it rested upon a war in which the original justice was on the side of the conquered, not of the victorious party."

It was a courageous admission of error, but perhaps the courage may be said to be somewhat vicarious when the respective positions of the British cabinet and the African colonists are considered. Sir Benjamin D'Urban in Cape Colony saw¹ "7,000 of His Majesty's subjects in one week driven to utter destitution." Lord Glenelg in London wrote of victims who² "had a perfect right to endeavour to extort by force that redress which they could not expect otherwise to obtain." "Your Lordship in England," replied D'Urban, "and I upon the spot have seen all these African matters under different views, and it would be now useless to pursue the subject further."

So the *idée fixe* of a philanthropist and the British government's predilection for irresponsible information proved final. The outline of the story has been given at some length, for to this decision in 1835 may be very largely attributed an event which has directed the whole course of South African history.

As has been mentioned above, the unpopularity of British administration was due to many causes, of which the native question may be held to have been the chief, and of this a small clique of mis-

¹ Sir Benjamin D'Urban's reply, June 9, 1836.

² Lord Glenelg's despatch of December 26, 1835.

sionaries had become the arbiters. The decree of 1835 was the last straw. The Dutch felt existence to be impossible under a government whose policy was, as they considered, dictated by inexcusable and unalterable prejudice. But Cape Colony was only a corner of South Africa; beyond, to the north and east, were wide territories, outside the pale of that government; who should prevent their going? Who should forbid their escape? So in 1836 the great wagons were packed with wives and children and worldly goods, to roll away on their perilous journeys into the wilderness, the one object of the men who guided them being to get away and to stay away from British rule. So began the story of the Orange Free State, of the Transvaal, of Natal; of disasters and wars; of widening racial antipathy, of deepened misunderstandings and bitterness. As the history of Cape Colony broadened into the history of South Africa the hard facts of life were to prove destructive to the dreams of Lord Glenelg and Dr. Philip ere they were shaped into the foundations of an enduring structure.

In the foregoing an attempt has been made to assign to the Great Trek a definite parting of ways, as the place of a decisive landmark in the history of South Africa. In the following pages the main course of South African history will be touched upon only where the respective policies of Great Britain and the independent states concerned appear most intimately to have reacted upon each other—at moments where the divergence of the two ways became more determined; where through community of interests they approached each other, only to part more acutely than before; until at last their convergence persists and the two ways combine in one broad road.

Between 1836 and 1840 the vanguard of the Boer emigrants had driven the Matabeles from the territory which had been conquered and depopulated by them in former years north of the Orange river. Crossing the Drakensberg, it had broken the Zulus under Dingaan, whose treachery to Retief, and again at Weenen, the Boers had sworn to avenge. They had then established some claim to the territory north of the Orange river and on the east to a district inclusive of modern Natal. Their title was that of pioneers, adventurers, discoverers; and for it they paid in coin which by many was considered legal currency in such transactions—perseverance, privation and disaster, hard fighting against brave and merciless enemies. The founders of the Boer republic and Natal were not troubled with misgivings.

But it was otherwise with the British government. These men, whose dealings with the natives (or, anyhow, the account of whose doings) had inspired British policy, now claimed to have renounced their allegiance, to have founded independent states outside the British Empire. And there, it seemed, out of reach of control, accountable to no authority, they were pursuing their evil courses—witness their wars with the Matabele and the Zulu. On the other hand, colonial responsibilities were already too heavy, the Empire too unwieldy. "The great evil of the Cape Colony consists in its magnitude" so had Lord Glenelg written in 1836 to his

successor Lord Normanby. Further extension appeared a dangerous remedy. Yet that is what it came to.

A growing dispute between the farmers and a native tribe, a cattle raid, "reprisals" by the Boers, a commando headed by Pretorius, led to an appeal by a neighbouring chief for British protection; further, the expansion of the Boer claims produced a movement of tribes dangerous to the eastern marches of the Cape Colony. A British force was sent to the frontier. The arrival of a Dutch ship and an American ship at Durban precipitated matters—incidents which were misinterpreted by the two sides: by one as indicative of support from the Netherlands, by the other as an omen of foreign interference and foreign trade to a port outside Cape Colony. In April, 1842, the troops were moved to Durban. The Boers protested; protests led to open hostilities, with the result that the small British force was repulsed in a singularly ill-conceived night attack and thereafter besieged in its camp. Finally reinforcements arrived, in face of which the Boer force broke up and in July certain of their representatives tendered their submission. Then followed a special commission, much discussion, and considerable bickering; finally—Natal was to become a British colony; it was to be distinct from the Cape: to have its own elected legislative council; the farmers were to be consulted; the terms in fact were generous; but behind it all would be British government and British sovereignty. The irreconcilables turned back across the Drakensberg, not to be won even by that fruitful territory for which they had paid with their blood.

Henceforward there were to be new complications in South African history—the white races had definitely split; there was room for diplomacy, intrigue, the playing off of one European Power against the other. Though Great Britain had annexed Natal, there were other independent States, built or building, the works of the emigrants who had remained north of the Orange river, or who had roamed further beyond the Vaal.

North of the Orange, to the west, lay the land of the Griquas, a comparatively small tribe of very mixed blood; to the east, the territory of the Basutos; beyond, further to the north, the Boer assembly at Winberg had some nominal authority, but exercised little control over the farmers who were now settling amid the Griquas and Basutos. In the first place it should be explained that neither of these peoples had an inalienable right to these territories, both having occupied them as waste places depopulated by the Zulu and Matabele invasions. In 1843 the British government made treaties with the Griqua Adam Kok, and with the Basuto chief Moshesh, by which they were granted British protection and acknowledged as owners and rulers of the border territory north of the Orange. But the farmers were excluded from the terms of these treaties; they were still addressed as "British subjects"—the last thing in the world that they desired to be—and exhorted not to meddle with the government's new-found allies.

It was no doubt necessary that the natives should be protected

against the Boer farmers, who were not distinguished for any rigid observance of the rights of others, especially when the others were black. But this policy in effect put white men beneath the rule of natives and it is hard to believe that in its conception it was altogether innocent of a desire to penalise the Boer emigrants. Although it was later modified, trouble ensued; the damage was already done. Sir Harry Smith, lately arrived as governor of the Cape, but with much South African experience behind him, came to the conclusion that only one thing could be done to stop the incessant bickering and prevalent disorder. On 3rd February, 1848, he declared the whole territory between the Orange and the Vaal rivers to be under British sovereignty. Possibly had he held his hand for another year or two his personal influence among the Boers might have proved the solution; in a short time he had already done much. But he misinterpreted the situation; the farmers would meet him only with force and at Boomplatz, on 29th May, Pretorius fought and was defeated. He, with his most determined supporters, fled over the Vaal and the Orange River Sovereignty was born into a short and unhappy existence.

The annexation was not popular with the government at home; it was unwillingly assented to on the understanding that it was to cost neither trouble nor expense. They were conditions hard to fulfil. Constant feuds and tribal wars between the Bechuanas and among the Basutos involved the colonists—both the Dutch, who had remained, and English settlers, who had come in from the Cape—in tiresome and incessant intervention. An attempt by one British resident, Major Warden, in 1851, to put the Basutos in their place ended in disaster at Viervoet, and by 1852 the Secretary of State for the Colonies was writing that "The ultimate abandonment of the Orange River Sovereignty should be a settled point in our policy."

So far the Transvaal Boers had kept to themselves—content to be out of reach. But now came their opportunity. The Kaffir war of 1850–52 (surely the work of Lord Glenelg) had proved a disastrous and difficult business. Troubles with the Basutos added to the embarrassment. However, Pretorius from across the Vaal offered to treat with the government for the recognition of his independent state, claiming at the same time to have been invited both by the Basutos and by the white settlers to act as mediator in the Orange River Sovereignty. The claim was in the nature of a threat. Pretorius demanded recognition for the Transvaal Boers or he would interfere in the Basuto business. The British Resident knew well that there were many in the Sovereignty besides the Basutos who would make common cause with him. The result was the Sand river convention of 1852 by which the Transvaal Boers were granted "the right to manage their own affairs and to govern themselves without any interference on the part of Her Majesty's government." The South African republic was born.

But still the troubles of the Orange river sovereignty remained. General Cathcart's bungled expedition against the Basutos in 1852 increased the difficulties, for it proved that if this colony were to be settled,

occupation by strong bodies of troops would be necessary. The other alternative was its abandonment—so Lord Grey had written and so the government decided. It was an intensely unpopular step, both in the Cape and in the sovereignty itself, but protests were unheeded. On 23rd February, 1854, a convention was signed at Bloemfontein guaranteeing the future independence of the country and renouncing all dominion and sovereignty of the Crown over the Orange river territory.

So the emigrants had realised their ambition—escape from British authority and recognition of their independence; to get away and to stay away—for a generation

It is difficult to fix the next milestone in South African history, but for practical purposes it may be put at about 1870. In the preceding decade there had been signs that the two paths were approaching each other. Confederation, some form of union in South Africa, was spoken of, only to be dismissed as undesirable, first by the government at home, and then, when the wisdom of Sir George Grey's views were realised, by the South African states themselves.

The annexation of Basutoland in 1868 aroused once more that bitterness among the farmers of the Orange Free State which the last ten years had done much to allay. It was a necessary action, but due in the first place to the policy which had left an unconquered—or worse, a half-conquered—race like the Basutos to be dealt with by a young and weakling state.

In 1870 two other events occurred which, though apparently unrelated, were closely connected in their ultimate results. In that year diamonds were first discovered in large quantities and at the same date the rising power of the Zulus may be said to have become firmly established; they were both to play a large part in future events. The story is intricate and only a short survey can here be given.

The richest diamond district lay along the banks of the Vaal river, that is, in the north-western part of the Orange Free State and on the extreme south-west corner of the republic in a territory hitherto so worthless that rights to it had never been established. There now appeared three claimants in the shape of (1) The Orange Free State, (2) The South African republic, (3) Waterboer, chief of the western Griquas. The last-named based his claim on an agreement said to have been made many years ago with the eastern Griquas. The Orange Free State argued that this district had formed part of the Orange River Sovereignty since 1845 and that according to the convention of 1854 it must be considered to have passed to the Orange Free State.

In the meantime the republic, submitting their claims to the same territory to a court of arbitration (on which the Orange Free State refused representation), lost their case through mismanagement and by the Keate award of 1871 the territory was pronounced to belong to Waterboer. Both the South African Republic and the Orange Free State were disappointed and discontented. Their sense of injury was not diminished by Waterboer's subsequent invitation to Great Britain

to take over the disputed territory and administer it on his behalf, which was accepted towards the end of 1871, when west Griqualand was proclaimed British territory and a line drawn cutting off the diamond district from the Orange Free State. Soon afterwards a special court was convened to decide claims for disputed ground on the diamond fields and all claims resting on grants given by Waterboer were thrown out on the grounds that this chief (*from whom Great Britain had received the territory*) had never had any rights there and, therefore, had had no business to make grants of land! This was too much for the Orange Free State. President Brand journeyed to England to lay his case before the government. Protracted negotiations followed and in the end Brand received £90,000 as a solatium, with which he wisely returned to his state, where he made good use of the money. But £90,000 could not buy good feeling.

To turn now to the Zulus. By 1870, two years before the death of Panda, Cetewayo, his son, was virtually king in Zululand. In the early forties the Zulu power had been all but broken by Andries Pretorius and his Boers. Great Britain had then stepped in to save the remnants from destruction and by recognising Panda as an independent sovereign had afforded an interval of respite. The policy was dictated by the best of motives—philanthropy, a most humane regard for the protection of the untutored native. But perhaps values had been a trifle confused. At any rate by 1870 Cetewayo had begun to put the finishing touches to an immense, highly trained and perfectly disciplined army of savages. Once more the Zulus were a nation in arms.

On the north-west, Zululand was bordered by the republic. To hark back once more to diamonds and the Keate award—for here is a link in the complex story—the failure of President Wessel Pretorius to carry his case before the court of arbitration and the consequent loss of the disputed territory resulted in his forced resignation. His successor, President Burgers, was a man of dreams, and, unfortunately for himself and his people, he was confronted with realities. He was called upon to conduct a difficult native war, in which the Boers had become involved, with one Sekukuni, chief of the Bapedi. His leadership was disastrous. Everywhere the farmers met with defeat. Their disasters, of course, were exaggerated among the natives, as were the triumphs of the Bapedi. And from the south-east Cetewayo—upon whose lands the republic had been encroaching for some years—watched his discomfited enemies. Was it not time to step in?

And there were other troubles. In addition to the Bapedi, there had been fighting with the Bechuanas on the north-west also. There were rumours, and good evidence too, of cruelties to the natives within the state, of anarchy and lawlessness; of disorders among the new population of prospectors and diggers, most of them white men, many of them Englishmen. The treasury was empty, the government had practically ceased to function. The Boers were discredited. White men in general were discredited. It certainly seemed that Cetewayo might step in.

Luckily for the South African republic, Great Britain came before him. In April, 1877, Sir Theophilus Shepstone, exercising the full powers with which he had been sent out by the British government, proclaimed the country a British possession and himself assumed control of the "Transvaal."

By some it was held to be an "act of violence," high handed and inexcusable. But there is another side to consider. Besides the eternal native problem, which was now, as ever, in question, for years the South African republic had been without stable government and under the changed conditions brought about by the discovery of mineral wealth and consequent inrush of new European settlers, weak government and mis-government had ceased to be the purely domestic affair of the republic. It was a danger to South Africa as a whole, and Great Britain, responsible in the first instance for the existence of the South African republic, was a strong power, whose duty, it may be argued, was to intervene for the enforcement of order and prevention of bloodshed upon the borders of the Empire. The annexation of the Transvaal was politically significant in two directions: it followed upon the annexation of Basutoland, the Keate award, the declaration of protection over Waterboer and Griqualand West—a sequence which pointed to the impracticability of the old policy of "cutting responsibilities," the policy which had produced the Sand river convention and the proclamation of Bloemfontein. But it was the death-blow, too, of the other policy. Ever since the early sixties there had been some talk of federation; after initial opposition the government had come to smile upon this scheme. But it was too late: the course of events in South Africa outstripped "public opinion" in England. The South African bill, framed to facilitate the confederation of the South African colonies and states under a union government, was before the house. But in South Africa itself the objects for which it was designed had passed beyond the pale of practical politics.

Sir Bartle Frere, sent out to the governorship of the Cape in March, 1877, as the apostle of peace and union, found discord, and was soon to find war, on every side.

By this act of annexation Great Britain incurred not only the hostility of a large proportion of the inhabitants of the Transvaal but also, by an irony of fate, inherited the enmities which those inhabitants had aroused against themselves. Cetewayo looked upon his new neighbours with suspicion and disfavour; his army, only with difficulty restrained, was seething with impatience.

In 1878 the outstanding boundary dispute between the Transvaal and the Zulus was settled in favour of the latter, but at the same time as this finding was promulgated Sir Bartle Frere demanded satisfaction for outrages committed by Cetewayo's people, and also the disbandment of his army. The latter demand, right and absolutely necessary, was at the same time one which Cetewayo in his position as military tyrant could not, even if he would, obey. The Zulu War of '79 was as unfor-

tunate as it was justifiable. The initial setbacks, serious in a military sense, were retrieved by ultimate success; but in the sphere of politics its results led to disaster, pure and simple, which by its very nature could not be redeemed.

Two delegations of Transvaal Boers to England had been informed in the most unequivocal language that, although there was no prospect whatever of the annexed territory being handed back, the Transvaal would be given some form of provincial self-government—a pledge which had also been given by Shepstone's first proclamation. But two years had elapsed and nothing had been done; bitterness grew. The Zulu war came. On one side its natural result was pre-occupation; on the other side the news of disasters to British arms strengthened the determination of the malcontents. And when at the close of 1879 a crown colony constitution was offered, we were once more too late.

Paradoxically the Zulu war, by the initial disasters of which trouble had been sown, was by its ultimate success only to hasten the harvest. Victory had disposed of the Zulus; for the moment there was no danger from the natives; the Boers had their hands free. But whether, until the last moment, there was a definite intention to fight is open to doubt. Surely England would give way? Twice before the government had said "no" and meant "yes"; the Orange river colony had been handed back, the South African republic had been recognised. And early in 1880 Mr. Gladstone became prime minister. While in opposition he had strongly condemned the annexation of the Transvaal—it was to be expected that, once in power, he would reverse the policy. Although on three occasions the Government had declared that it was quite impossible, unthinkable, that the Transvaal should be given up, that was an old story; what had been done before would be done again. So the Dutchmen argued; events proved that they were fully justified in their opinions.

Yet the British government stood firm—for a while; till, in fact, it was clear that the Transvaal really meant business. Bronkers Spruit; Lang's Nek; finally Majuba hill and Colley dead—the evidence seemed good enough. So the policy was reversed; the unthinkable was conceded. What had been done before should be done again—though in a manner new and unaccustomed to the British. By the convention of Pretoria of 1881 the Transvaal again became an independent state, subject to certain reservations as regards foreign policy; and, three years later, by the convention of London it was once more recognised as the South African republic; its President was Mr. Paul Kruger.

(To be continued.)



THE ORGANISATION AND TRAINING OF THE ARMY IN INDIA.

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(Instructor, Cavalry Schools, Saugor).

On Wednesday, 6th February, 1924, at 3 p.m.

GENERAL SIR E. G. BARROW, G.C.B., G.C.S.I., in the Chair.

GENERAL SIR E. G. BARROW, G.C.B., G.C.S.I. (Chairman): Ladies and Gentlemen, if this were a purely Anglo-Indian audience there would be no need for me to introduce the Lecturer, because he bears the honoured name of Donald Robertson, which is well known in India. But, apart from that claim to our attention, he has had the considerable experience which is valuable to a lecturer on such a subject as this. He has been second in command of a regiment which now bears a new name which may not be familiar to all of you, the 8th King Edward's Own Probyn Horse. He has also been one of the trainers of our cavalry officers at the Saugor School, and, moreover, the fact that he has won the D.S.O. also shows his claims to your attention. Without any further words I will now ask the Lecturer to proceed.

LECTURE.

MY subject is the armed forces of India. And when dealing with India, it is a well-known axiom that there are only two categories of persons who are qualified to speak: namely, those whose acquaintance with that country is limited to some 30 days, or those whose Indian service exceeds 30 years.

Let me confess, before going any further, that I possess neither of these essential qualifications; moreover I would stress the fact that the general staff, although most helpful when I applied to it for aid, has not briefed me to speak on its behalf; consequently any views I may express are my own, and represent those of an ordinary regimental soldier of the Indian army.

Before dealing with the organisation of the army in India I purpose to sketch, quite briefly, the functions which this instrument may be required to perform in present day conditions—I need hardly add most fluid conditions.

These functions may be summarised to include:—

- (1) the maintenance of internal tranquillity.
- (2) the enforcement, if need be, of peace on her borders.
- (3) co-operation with the imperial forces in military undertakings where India's interests are affected.

When considering these functions let us eliminate improbabilities, and assume that the British navy is able to guarantee the integrity of India's seaboard and safeguard her two outer gates—the Suez canal and Singapore; let us assume that her eastern and north-eastern neighbours are unlikely to appear among the ranks of her active enemies.

There remain certain factors which may affect India's military liabilities and the policy of those responsible for meeting these commitments,—namely,

- (a) Afghanistan.
- (b) The border tribes.
- (c) The defence of the Persian gulf and of our oil interests in that region.
- (d) The behaviour of the civil population of India
- (e) The conduct of the Indian army.

But beyond and behind the above factors there are two great revolutionary forces at work throughout the Middle east, both of which are seeking to link up their activities with the discontent which exists in India, as in all other countries, as an aftermath of the war.

These two forces are Bolshevism and Pan-Islamism.

The former endeavours to excite the various middle eastern countries to rid themselves, by revolution, of all western influence. It regards the British empire as its arch enemy, as the embodiment of all that is most obstructive to the spread of Bolshevik doctrines.

It considers that India represents the "heel of Achilles" where this Empire is concerned, and in consequence has selected for its primary object the termination of British rule in India.

With this object the Third International has instituted schools at Tashkent and Moscow in which extremists are trained and inspired to undertake anti-British propaganda. Money on a lavish scale has been forthcoming as a backing to this scheme; for example, it would be interesting to know the extent to which Bolshevik gold influenced the professional agitators who pulled the wires behind the scenes of the Gurdwara Parbhandak committee. And whether this same gold is not a contributory cause to the novel campaign of murder on the frontier.

Every ruse is adopted to introduce this propaganda into India. Young Indians seeking education in Europe; lascars on ships plying between European and Indian ports; Europeans of various nationalities visiting India for the ostensible purpose of trade; women also are employed as agents.

No road is too long or too devious. Their emissaries come by the Pamirs, or through Thibet and the Nushki route, and under many guises they present themselves at the sea ports.

However, despite our national trick of decrying our government institutions, those responsible for meeting this serious peril to India have not slept. On the contrary, they have displayed a lively interest in the matter, with the result that the successes achieved by the Bolsheviks are in no way commensurate with the efforts they have expended, although it would be premature to describe their efforts as a failure. The menace has been and still is grave.

To turn to the Pan-Islamic movement. Few who have come in contact with him, none who have served with him, have anything but respect and admiration for the devout Muslim. In its purer and more sincere form the Pan-Islamic ideal, which desires to see all Islamic countries under Islamic rule, is free from all revolutionary taint. Control of this movement has, however, been grasped by professional politicians of extremist tendencies, who have subordinated its religious aspect to serve political ends and are eager to use revolutionary means to attain those ends.

So long as it is in their interests they are prepared to work in conjunction with the Bolsheviks to bring about the overthrow of the greatest of all the non-Muslim powers in Asia, namely, the British empire.

This unnatural alliance between a fundamentally religious movement and the Bolsheviks, whose ethical code is a declared negation of any form of Deity, cannot endure. Whilst it lasts the Russians derive the greater benefit from it, in that it enables them to adopt a religious cloak in their intrigues with the Afghans, the frontier tribes and with Indian Muslims generally.

Among comparatively recent events, two stand out as robbing the Pan-Islamic propaganda in India of its sting: I refer to the conclusion of the long delayed but highly flattering peace with Turkey; also to the action of the Angora government in depriving the Khalif of his temporal powers and setting up Mustapha Kemal in his stead in a position wholly alien to Muslim tradition and sentiment, as president of a republic.

As with Russia so with Turkey, internal, political and economic troubles are accumulating and absorbing more and more attention in those countries, to the exclusion of external activities, which, in consequence, show a tendency to decrease.

To return to a brief review of the factors already mentioned as likely to affect the military situation in India :—

Afghanistan is being modernised under the influence of the youthful Amir—an ambitious young ruler. This process of modernisation is not over welcome with certain influential sections of his conservative subjects, moreover it costs money; much more money than the Amir estimated or can lay hands on.

The psalmist, who was an oriental potentate and so in a position to give first hand evidence, made certain pithy observations on the reliance to be placed in princes—advice to be borne in mind in our dealings with Afghanistan.

However, from the standpoint of the Amir, we have certain solid advantages to offer. We are by far the most stable of his neighbours, and stability amongst the middle eastern rulers is a quality much sought and little found. Further, we are eminently solvent, and, still more to the point, our purse strings are not too tightly drawn. Again, what we promise we perform—a trait not shared by his northern neighbours, the Bolsheviks, who have not yet carried out their share of their post-war agreement to hand over certain large stocks of military and other stores.

Hence our general relationship with Afghanistan is good. The Amir has refused to allow his country to be used as a corridor for Bolshevik propaganda, or to allow them to furnish arms in bulk to the north-west frontier tribes. On the other hand the sheltering of the gang of murderers responsible for the many recent murders on the frontier in Afghan territory and the failure to bring them to justice has considerably strained the relations between the Afghan and Indian governments.

The Afghan army has recently been increased to some 60,000 regulars, 20,000 militia, and 250 guns, of which 150 are breech-loaders, apart from a million fighting men, of whom about 80,000 can be readily brought into the field. Large orders have been placed for modern guns, aeroplanes, automatic weapons, etc.; moreover there is, in Afghanistan, a staff of Turkish officers who, in the face of considerable difficulties and jealousy, are attempting to make good the deficiencies in training and organisation. Such modern equipment is of doubtful value unless it is handled by skilled *personnel* and unless the service of maintenance is efficient and scientifically organised. Still, we are confronted with the possibility of our neighbour being equipped and trained on modern lines—in fact, in the event of war, of our having a much more formidable enemy to deal with than the Afghanistan of the past.

The frontier tribes.—The situation at the moment is remarkably quiet. The Mohmands, the Afridis, are behaving well, working on the construction of the Khaiber railway and freely taking up the Khassadar (tribal levy) service. In Waziristan greater quiet reigns than at any time within the last ten years—the lull after the storm. But at any moment fresh trouble may arise. If their numbers—about half a million—have not increased, the number of small arms of precision in their possession has risen during the last ten years to 35,000; our last campaign on this border gave us clear proof of the improved organisation, tactics, leading and *morale* of the tribesmen.

In fact these border tribes are an ever-present military liability which would tax the resources of a far greater army than India can boast of; a constant thorn in the side of the military organiser, who cannot fail to allow for a tribal outburst at a time when all the limited forces at his disposal are urgently required elsewhere.

The Persian gulf.—Mesopotamia and Arabia generally are in a state of flux. With that excellent neighbour, the Turk, we knew exactly where we were, but under present conditions no man can foretell what will

become of the weak experimental kingdoms in these parts when the British forces are withdrawn, as by treaty they must be in the course of the next two or three years.

From the military standpoint their inhabitants are negligible, except in guerilla warfare. In this weakness lies our danger. The historic side-door to India will be temptingly unlocked, a fact which may offer strong temptation to evilly disposed or envious powers, thus adding to the burden of those responsible for India's safety.

The internal situation in India.—I am no politician, nor have I the skill to describe to you the colours of a kaleidoscope. But, speaking broadly, an exaggerated opinion of the state of unrest in India appears to be prevalent in this country. Things rarely turn out to be as dark as they appear in reuter's.

Again, speaking quite broadly, the wave of unrest and discontent which passed over India, in common with the rest of the inhabited world after the armistice, shows signs of subsiding. When, eventually, we reasserted ourselves as rulers, the masses of India, who were beginning to show uneasiness, settled down again, with a sigh of content—pathetic content if you like.

The Sikhs, it is true, have nursed their discontent longer than the rest, but then they had had their heads turned by too much praise and attention, and were ripe fruit for the professional agitator. Moreover the position was complicated by our forbearance, our reluctance to intervene firmly in what professes to be a religious question—the management of the Sikh shrines.

In the east, the Gods present a big club to him who knows how to bide his time. So in this case; the Gurdwara Parbhandak Committee, discarding all but the thinnest of religious cloaks, eventually paraded in their true colours as fanatical politicians, and as such laid themselves open to the action of the law.

In upper India in the evenings, when the elders meet under the village tree, they are more deeply concerned by the age old Hindu-Mahomedan enmity, which, despite political catchwords to the contrary, mouthed by countless agitators, has burst out afresh. To these elders this thorny religious problem, the crops, their prices, the arbitrary doings of the Naib Tehsildar, the village policeman, or the irrigation subordinate, represent deep-seated, vital interests, measured with which, elections to the councils, or modifications of the British Raj are of trivial importance.

In industrial centres and in the big towns an inflammatory press and politicians have produced an atmosphere hostile to our rule, but recruits for the Indian army are not drawn from these areas. Tweaking the lion's tail is a delicious pastime, especially if that noble beast shows signs of going to sleep and talks about pulling out his claws and teeth. When, however, he raises his head, and gives evidence of life, the chance of fun vanishes and sane folk get back to their proper business.

Moreover it must be remembered that these village committees,

although they are completely inarticulate to the outside world, represent over 90 per cent. of India, in fact the real India.

If our rôle was to continue governing India as in the past, it would be a comparatively easy task, but that is not possible under the reform schemes. Concerning the working of the reform scheme and such aspects of it as the recent elections, I have nothing to tell you—these are political matters outside the scope of this paper. It remains, however, to be seen whether the Indian peasant accepts the rule of his new masters gladly or whether he provides a fresh problem with which the army in India will have to cope.

This army is comparatively weak in numbers and is widely separated in its peace cantonments. For unity of action it is dependent on long and slender communications and in consequence there is always a risk of these vital communications being interrupted in a wholesale manner.

Moreover only one-third of this army is British, whilst two-thirds are recruited in India, and, if the latter turn against us, we are indeed in sore straits. If a tree is rotten at the core it cannot bear good fruit, any more than loyal trustworthy troops can be raised from a radically disaffected people. In fact the measure of success attained hitherto by the anti-British extremists can be gauged by the state of the Indian army.

The loyalty of this army to-day is assured, but persons exist who delight in comparing us serving soldiers with pre-Mutiny officers, adding that we live on the brink of a volcano on the verge of eruption, and they marvel at our inability to appreciate the obvious.

May I point out that our present day means of acquiring intelligence are more far-reaching as well as more sensitive than in those pre-Mutiny days and that our confidence is better founded.

The degree of this loyalty in present circumstances is an astonishing phenomenon, for, when one considers the matter, there are many factors at work calculated to produce the opposite effect. For example, security of tenure and of the means of livelihood are normally regarded as essentials to contented service, but owing to the reorganisation of the Indian Army and the reduction this involved, large numbers of serving soldiers have been cut adrift in the interests of economy—moreover there is a haunting dread that the economic axe may fall again.

In the next place, the extremists have made a dead set at the sepoy, endeavouring to alienate him from his allegiance by direct propaganda, *i.e.*, seditious letters, pamphlets and *communiqués* addressed to serving soldiers either with their units or when on leave at their homes. They have not scrupled to hit below the belt, by making life difficult for the sepoy's women folk and children, when he is absent from his home; and then sending him exaggerated reports of the mischief caused, with threats of worse to follow. None the less, the actual results achieved have been remarkably poor. There have been instances of indiscipline which the authorities never attempted to conceal or disguise, but which yielded immediately to treatment; moreover these cases have been

isolated lapses and not epidemic outbreaks. In the last two years they have rapidly decreased in number until they have reached a negligible quantity. And the sepoy of to-day, thanks to his soldierly quality of loyalty to his salt, and his almost ineradicable trust in his British officers, is a dependable instrument of the Indian administration.

I have emphasized this as certain most unfair and disparaging rumours have recently been current, but I venture to assert that the sepoys' conduct since the armistice will bear favourable comparison with that of the troops of any nation, including our own.

The briefest summary of the factors influencing Indian military policy and organisation would be incomplete without allusion to the ever-present need of stringent economy, which again is complicated by the increased cost of the highly technical armies of the present day.

Apart from the provision of costly equipment, much of which is eminently perishable in the Indian climate, we also have the fact that this modern machinery is handled by a people devoid of the mechanical sense.

The numbers behind the scenes of a modern army, who are necessary to provide what in the motor trade is called "service," are large; moreover they must be skilled and consequently highly paid.

Then, again, compared with his pre-war comrade, the sepoy now receives free rations and is infinitely better housed, a reform long overdue. Also his pension, though still small, is on a less miserly scale than of old.

But all these changes cost money, and therefore call for economy in a non-revenue producing department such as the military.

To meet these various and often conflicting obligations the army in India is organised for war in three main categories:—

- (a) *Covering troops* to form a protective screen along the frontier—with some 6 cavalry regiments, 16 batteries and 48 battalions.
- (b) *Field Army*: India's striking force consisting of 5 cavalry brigades, and 4 divisions, pending the arrival of imperial reinforcements.
- (c) *Internal Security*: Some 8 cavalry regiments, 49 battalions with a complement of artillery, plus the auxiliary force, of which more will be said later.

To turn to the peace organisation behind these forces.

To provide, maintain, as well as train her troops, India is divided into four commands and is again subdivided into 14 districts—apart from certain minor independent areas, e.g., the Delhi area.

Of the districts, seven are first class and seven are second class, their organisation being on the lines recommended by the Esher Committee in 1920, in whose report the pros and cons of the old and the new organisations are fully examined.

Another new feature of the present organisation is the substitution of the group for the link system amongst the battalions of the Indian army.

The latter system consisted virtually of isolated battalions, except in the case of Gurkhas, and the "link" was little more than a nominal affiliation, which in war did not provide for the adequate and automatic flow of reinforcements; in fact, under the test of war, the old system broke down and was the cause of waste and overlapping. Even in peace time battalions were never up to full strength in trained men, as they included a number of recruits; further a considerable staff of picked men had also to be deducted to train these recruits. The old Reserve Scheme proved valueless—the pitiful scenes in France in 1914 will never be forgotten by those who witnessed the arrival of our reservists.

Consequently a system has been evolved by which certain battalions, recruited from the same area, varying in numbers from five to six have been grouped together under a common title. The composition and the uniform of all the battalions inside a group have been made identical. One battalion in each group is its permanent training battalion, which, as its name implies, trains the recruits for the whole group and furnishes reinforcements to those of its sister battalions which are on service.

At first the idea was unpopular, especially with the units selected to be training battalions; the new system involved renumbering and it was feared the loss of much invaluable tradition, but the Britisher's faculty for making the best of things—having, of course, had his full dress "grouse"—and carrying his men with him has won the day. *Esprit de groupe* is taking the place of *esprit de bataillon*; moreover the training battalion in its permanent station offers certain solid attractions to those who relish a spell free from everlasting moves, also an escape from Waziristan and similar unattractive places. To the married, whether British or Indian, this is a considerable inducement; and a man who learns how to become a successful trainer is profitably employed.

In the Indian cavalry the group system has also been introduced, but the three regiments that constitute a group take it in turns to serve at the cantonment which represents the headquarters of the group, and there are no permanent training regiments in the mounted branch. The cavalry, however, has suffered more severely than the infantry, as the 39 pre-war regiments have been reduced to 21. This reduction was brought about by amalgamating all but three regiments in 18 pairs. At first each pair carried both their old numbers, but this proved cumbersome and retarded the real amalgamation of the two units; hence a general renumbering took place.

Of course the loss of the old numbers, with all their fine old associations and traditions, was keenly felt, but for all that, these amalgamations have been loyally supported and, generally speaking, are working well.

At the risk of sending this audience to sleep I must touch on the matter of establishments, at the same time referring to the reductions made on the recommendations of the Inchcape committee.

A war establishment is built up from below, from the basic unit,

which varies of course with each arm, *i.e.*, in cavalry, the troop; in artillery and in infantry, the section.

To take the case of the infantry. It is the section and through it the platoon which ultimately gives us victory; hence their organisation and strengths are of prime importance and with these we cannot afford to tamper.

The infantry section consists of the section commander with seven men.

The platoon consists of platoon headquarters, 1 Lewis gun section, 3 rifle sections.

The company consists of company headquarters, 4 platoons.

The battalion consists of 1 headquarter wing, 4 companies.

This headquarter's wing consists of headquarters and four platoons, of which one is the machine gun platoon and the others contain all the specialists, such as signallers, band, clerks, etc.

Here we have the irreducible minimum which experience in war has shown to be essential to efficiency.

But in every unit on mobilisation there are a certain number of men unavailable from sickness or other causes at any given moment, representing about 5 per cent. Moreover, after mobilisation, casualties are the rule and not the exception, and they must be promptly replaced by trained reinforcements, or the balance of the organisation and fighting value of the battalion are impaired and reduced.

Formerly the peace establishment of Indian infantry which being 825 allowed these units to mobilise at their full war establishment of 766, after deducting the 5 per cent. unfit previously mentioned.

Then came the Inchcape committee and reduced the peace establishment to 762, *i.e.*, four below war establishment.

To make good this deficiency a new regimental reserve system has been inaugurated. Every sepoy engages for 15 years' service and is liable to transfer after five years' colour service to the reserve for the remaining ten years of his engagement.

This reserve consists of two classes—

Class A, 77 per battalion, one month's training a year for three years; after which the reservist is transferred to:

Class B, which also includes men for whom there were no vacancies in *Class A*, when their five years' colour service was complete; strength per battalion, 227; reserve training, one month every second year.

Hence by calling up "*Class A*" a battalion can take the field at full war strength; and by drawing in "*Class B*," plus its quota from the training battalion of its group, a battalion can maintain itself under normal casualties for eight months—the length of time it takes to train an infantry recruit and to send him forward as a fully fledged reinforcement.

The Inchcape committee recommended similar reductions in the other arms. For example, two British cavalry regiments were dispensed

with by India. Batteries lost a section apiece, thus making their peace and their war establishment identical (four gun batteries). British infantry regiments were reduced by 130 other ranks. Other economies, too numerous to mention, have been introduced in every branch and department of the service, including a considerable reduction of the staff.

Indianisation.—Under the reform scheme control of the army will eventually be transferred to Indians.

Presumably it will be one of the last subjects to be so transferred, in fact their statesmen, as opposed to their agitators, have declared that they do not wish to take over control of the army until they have thoroughly grasped and mastered the other reins of government: but sooner or later the change must take place.

Obviously the instrument on which the governing body ultimately relies for support and for enforcement of its orders, must be of a piece with itself and not of alien material. Its army must be not only manned but also officered by natives of the country to be a truly national force.

As a preliminary step eight regiments (two cavalry, six infantry) have been selected for indianisation. We have been told that it will take over 20 years for these units to become entirely indianised. But in reality the pace of this indianisation would seem to depend on the pace at which the reform scheme is pushed through; for as soon as the army portfolio is transferred to an Indian it is most probable that measures for complete and rapid indianisation would be set on foot and hurriedly made law.

In the meantime the difficulty experienced has been to find Indians willing to transfer to the junior ranks of the eight units selected for indianisation.

As you know, there are already a limited number of Indians holding the King's commission. They represent the residue of a much larger number, who have been through Sandhurst, but who found soldiering involved too much hard work or who proved unsuitable.

All attempts to collect the few who remain and post them to the regiments selected for indianisation have met with a stout resistance. They declined almost unanimously, saying they were eminently happy where they were, and sooner than exchange they would prefer to resign their commissions.

This somewhat farcical situation appears to answer a question one often hears asked as to how the Indian would get on in an English mess, and what the subalterns would make of him. The answer is that it will depend on the man and not on the colour of his skin. In my own regiment at one time we had two Indians: one the scion of a reigning house with an English public school and 'varsity training; the other, a man of no particular pretensions. The first was a slack, superficial fellow, who was barred and ignored; the second, a sterling fellow, was genuinely liked and respected by the whole regiment, and lived on perfectly level terms with the other subalterns.

The folk who stand to lose most by indianisation, in my opinion, are the existing Indian officers, who see themselves passed over in "izzat" and pay by striplings of often no better family, and certainly with less experience or knowledge of men and of war.

Whether the efficiency of Indian units will be maintained at its present pitch after indianisation is complete is, to most minds, hardly a matter of doubt, but much will depend on the quality of the new officers. If they are not thoroughly grounded in their profession and, more important still, if they are not fully imbued with the traditions of impartial fair play of those they replace, then the standard of the Indian army must inevitably fall low, and fall fast.

Whilst on the subject of nationalisation I will touch on the Indian territorial force, which consists entirely of Indians and is quite distinct from the auxiliary force formerly known as the volunteers, who are primarily British, and are intended for local internal security.

In this territorial force an attempt has been made to offer the Indian a chance of joining a really national second line army—on the lines of our old English militia. A glance at the current army list will show you the success, or rather the failure, which has been met with despite the heroic efforts of the selected British officers deputed to set the scheme on its feet. In a few parts of India the territorial idea has taken root, *e.g.*, in Madras and in Bombay, amongst the Parsees (who see breakers ahead); and to a certain extent in the Punjab (where thrifty ex-soldiers see a chance of turning a few extra pennies), but there are large provinces in India where the territorial movement has made no headway.

Training in India.—On this I have little to tell you. In the British empire there is but one army and in that army there is but one method of training and one school of military thought. Despite Kipling, the east and west here meet. A large proportion of India's forces are concentrated on the frontier and these troops specialise in hill warfare to a greater extent than elsewhere. In this type of fighting our methods have changed considerably. One sometimes wonders what the spirits of our forbears, those wardens of these same marches, whose names inspired awe along the whole border, would have to say to our system of permanent piquets, of the numerical strength we now think necessary for a piquet, of the barbed wire, bombs and other impedimenta which are nowadays essentials. Perhaps they would remark that "Safety First," however admirable a motto for the London streets, never led an army to victory; that, in war, achievement, and an avoidance of risk, do not go hand in hand, and that mobility is the handmaiden of success.

But in fairness to the units, composed largely of recruits unfamiliar with the methods of the enemy or his country, it must be remembered that in 1919 they took on a far stiffer job than even confronted the hard bitten specialists of the old frontier force. Moreover the old traditions are steadily reasserting themselves, but with this vital difference—that, instead of their being confined to a few special battalions, they are being

instilled into every unit of the army, so that ultimately we shall be stronger and more formidable on the frontier than ever we were under the old system.

In India also we caught the post-war infection of education. The bulk of the officers and N.C.O.s were very young and, despite their war experience, ignorant of fundamental principles, let alone of the art of training men. Hence it became necessary to instruct them and they were sent to attend schools and courses.

Some of these young men appeared to spend their lives attending schools, going from one course to another until they contrived to slip home for a spell of leave, where—I speak feelingly as until recently I was senior instructor at one of the larger of these schools—they forgot much that had been pumped into them. However, a great deal of the seed will bear fruit and they gained the solid advantage of having learnt how to think hard and how to work hard.

Instruction is not confined to the juniors. Perhaps the most valuable post-war introduction is the senior officers' school, where majors, before getting command, have their military knowledge brushed up, learn the last ideas in training and leading, and leave after three strenuous and interesting months well equipped to promote efficiency on uniform lines. The more senior officers are also catered for at all the specialist schools with short refresher courses, lasting a few days, where they attend demonstrations and short lectures on the essentials taught at that school.

Jack Sepoy is not neglected, on the contrary he labours manfully with slate and pencil. Stonewall Jackson taught us to value the "thinking bayonet," and in modern conditions they are more important than ever; but the Sowar and Sepoy's brain-pan has its limitations, and with him one runs the risk of confusing the main issue: that of instilling a determination to drive cold steel into his enemy. Anyone who has witnessed a charge by the Royal Garhwal rifles—I refer without the least hint of disrespect to this glorious regiment—might be excused if he got the impression that there were few, if any, polished scholars in the ranks; but he would be blind if he failed to appreciate that they were all out to kill and conquer. When their hoarse, lisping cry of "Dushman maro" ripples down the ranks and their bayonets begin to twitch, when their active resolute attack sweeps forward in harmonious team work, even an unskilled observer must conclude that here a system of military education has been employed which in essentials and for efficiency it would be difficult to improve on despite the absence of a literary element. Again, take the Jat. No one emerged from the war with a finer fighting reputation, yet it would be hard to describe his brain in more flattering terms than "inelastic," and it does not suffer education gladly.

To sum up. The keynote of training in India to-day is hard work. We needed, as did every other army in the world, a lot of building up after the war. Slackness, ignorance, indiscipline had to be weeded out,

and the process has gone forward steadily. A keen commanding officer told me recently, that, by this April, his regiment would be almost up to pre-war standard in all things, and well above it in certain things, and that, by next April, his unit would be well above pre-war standard in all essentials. This, you will admit, is a satisfactory position, in view of the fact that these essentials of training are both more numerous and more technical than in the past. When I told you, at the beginning of this paper, that the general staff had not briefed me to speak on its behalf, I might have added that Lord Rawlinson does not confide his secrets to me. But I fancy I am not far from the truth if I state, that, when the time comes for His Excellency to say his *Nunc Dimittis* to the Indian administration, his regret at going will be tempered by a justifiable pride in the state of proficiency reached by the army in India.

DISCUSSION.

THE CHAIRMAN: I hope that some of the audience will now favour us with their remarks in connection with this subject. It is a very interesting one for the Indian army and I see one or two experienced officers here who, I hope, will now favour us with their views. I see we have with us lieutenant-general Sir Raleigh Egerton, who I am sure you will all be glad to hear.

LIEUT.-GENERAL SIR R. G. EGERTON, K.C.B., K.C.I.E.: There are one or two points in Colonel Robertson's lecture which I might be allowed to comment on, although I am, unfortunately, one of those to whom he alluded somewhat humourously in the beginning of his lecture who has spent more than 40 years in India. I know that we are regarded as "back numbers" and I know, that, when the question of the reorganisation of the army in India was under discussion, high staff officers at Simla used to write to the India Office, and ask them not to be influenced by the old "back numbers" who sat in the clubs and had views to express. I do not know whether, when Colonel Robertson has completed 30 or 40 years' service in India, he will be able to altogether divest himself of the desire to express his own views on the subject, but I sincerely hope he will not.

With regard to the reorganisation of the Indian army which he has described to us, there are one or two points that I think require explanation. One is whether it was necessary practically to destroy the traditions of every cavalry regiment, and also of most of the infantry regiments in an effort to reorganise the army. About the time that this was being done, most of the high military commanders in England were going about the country unveiling war memorials and laying the greatest stress on the value of regimental traditions, and yet, simultaneously, the general staff in India were scattering them. Could not the reorganisation have been done without it? I certainly believe that in the cavalry it could. Colonel Robertson has not told us much about the effect on the cavalry. I think there were 39 regiments of four squadrons and so we had 156 squadrons of Indian cavalry. No doubt those numbers were excessive and it was necessary to reduce them. They were accordingly reduced to 21 regiments, 18 of which consisted of two regiments jumbled up together, so that each lost its own identity, traditions and name. To my mind it would have been perfectly simple, if only 21 were required, to select 21 and let the other 18 sink into abeyance for the time being. I believe that if that had been done, and if other regiments had to be raised in the course of time, many of these could have been raised and

reorganised from regiments with their old names. I think when one remembers how the Indian soldier used to cherish the traditions of his regiment, and how the names of the old commanding officers, the old risaldar majors and subehdar majors passed on in the regiment, one cannot help feeling that it is a pity to shatter such traditions.

Another thing which it is not easy to follow on looking through the Indian Army list is the composition of that army. Before this reconstruction took place, I think I am right in saying, there were about 15 squadrons of Pathans: very fine fighting soldiers. There are now three and those three squadrons are allotted—I say it without malice and without meaning to say anything disrespectful to them—a group in which there are, I think, seven regiments, one of which had a very good connection with the Pathan recruiting ground and so got good men. But the other five or six, although they had Pathans in their ranks, had a very poor connection and did not get the best of the class. On the other hand, the old regiments—colonel Robertson's for one, and several others—had a very good connection with that fighting class, so it seems to me that we have lost a good recruiting ground without any reason whatever, and without any justification because it is very difficult for a regiment which is not well established in a recruiting ground to get a good connection.

There was one other subject which colonel Robertson alluded to, and that is the old Indian officer class, the old risaldar and subehdar. I remember in 1914 in France, when the Indian corps was there, a request was sent round—I do not remember when, but it was circulated to brigade and battalion commanders—asking for suggestions for improving the prospects of the Indian officer. I do not know what schemes were sent in. I myself made it my business to send in a scheme, and there was an idea that the military prospect of the Indian officer would be improved. When the Indian army was reorganised surely something might have been done in that direction? This class certainly suffers now at the sight of young Indians, generally brought up out of their own country and away from their own associations, whom they have had put over their heads, while these men of long service and wide experience, extraordinarily useful men in their way and excellent leaders of men, are still left in the rut. Surely something could have been done for them? But I have not heard of any step being taken to improve their position and one supposes that in course of time they will die out as a class. There is a story about one of them which I heard not long ago: There was a subehdar major and a very proved old soldier, who came to his commanding officer and said: "Sir, I understand the intention of the government now is that regiments shall be officered entirely by people like us; you sahibs are all going and they are going to have regiments officered by people like us." The commanding officer replied: "Yes, I believe that is so"; whereupon the old man thought for a few seconds and then said: "Sir, when that time comes I shall fight on the side of the enemy."

THE CHAIRMAN: Will any other gentleman favour us with his views? Surely in this audience of young officers there is someone who could give us the subaltern's point of view, or the captain's point of view. Colonel Wilson Johnston, would you care to make any remarks?

COLONEL WILSON JOHNSTON: There is only one addition which I should like to make to colonel Robertson's lecture, if he does not mind my butting in, and that is with regard to an aspect he has not touched on. It does not deal actually with the Indian army, but is a corollary to it, and that is the force that was known, both before and during the war, as the Imperial Service troops. In them and in

the new organisation proposed for them we have the possibilities of a very good reserve to our army. During the war and prior to the war they did not quite come up to the standard that was expected of them, mainly owing perhaps to their somewhat indifferent training. To-day, however, things are on a different footing. The Imperial Service troops have now been reorganised under the name of the Indian state forces and they are being classified as Class A, Class B, and Class C. Class A, we hope, will be trained and armed on the same lines as our own regulars. Class B will not be so highly trained nor so highly organised, but they will suffice for looking after the internal security of their States in time of war: a very important bit of reorganisation when you come to consider that the one-third of what we know of India to-day comprises Indian states. Class C will also be fit for internal security duties, but they are not permanently embodied. To-day, I think, we have at least five infantry battalions, and two regiments of cavalry, fitted to take their place alongside our regular troops in time of war, and as time goes on we hope to increase the possibilities of utilising the Indian State Forces to reinforce our regular troops in case they are wanted in time of war.

There was one little error which I think the lecturer made, and that was in telling us that the field army to-day consists of four infantry divisions and five cavalry brigades. As a result of the Inchcape cuts, one of the cavalry brigades went and actually the field army to-day consists of four infantry divisions and four cavalry brigades.

THE CHAIRMAN: Ladies and gentlemen, as no one else will enter into this discussion I think it devolves upon me to do so, for it is one of the duties of a chairman to throw himself into the breach, and although there are several points upon which I should like to speak at length I think time will not permit me to do full justice to the subject.

In the early part of his lecture colonel Robertson told us, I think, that Afghanistan could produce a million fighting men, of whom 80,000 would be available for service against us. Well, I have always regarded these large numbers, which are frequently quoted in regard to the frontier, in the light of a bogey, because I do not see how it is humanly possible, or, I should say, possible in a military sense, for these enormous numbers to concentrate in arms against us. The real fact is that you can only concentrate troops, or fighting men, in very large numbers if you have the food with which to feed them and if you have water for them to drink. The frontier is an arid country as a rule. Of course, there are the valleys with rivers flowing through them, but, on the other hand, there are large stretches where water is scarce and you cannot congregate large numbers of troops or men and animals on one spot. What is the fighting man on the frontier? He is a man who carries his own provisions; he has no commissariat behind him and there are no depôts; his food depends upon what he can take from his home and upon what he can carry. He generally carries it in a goat skin, or something of that sort. The small supply cannot last for long, and the result is that, after about a week or so, he has to leave somebody else to do the fighting, while he goes home to get more supplies of food. Consequently, in my belief, you will never get these enormous concentrations of troops against you. It is true there are a large number of tribes facing us from the Black mountain to Beluchistan, but that they will all be brought in force against us at one time and place, I think is beyond the bounds of probability or even possibility. Even in the great tribal rising of 1897, when nearly all the tribes on the frontier rose against us, taking the whole frontier from the Black mountain to Waziristan or even further south, I do not suppose our forces were confronted at any one time by more than 100,000, and certainly

not by 200,000 men. Therefore I would ask you to remove from your minds the idea that this vast horde of armed men on our frontier is a constant pressing menace.

Then I think the lecturer told us that the tribes would in future be a greater menace to us because there are now more men well armed in that area who may give us trouble in the future. That is true, but on the other hand we have one enormous advantage now, or will have in future, as compared with the people who have had recently to fight in Waziristan and that is that we have a central position at Razmak which overlooks the whole country. It is that central position, connected with the frontier both on the north and on the south by good roads, that will really be our strength in the future. Razmak is within striking distance of all the principal villages or groups of fortified houses, and, therefore, the Waziris will be much more exposed to our raids than we hitherto have been exposed to theirs. That is one great advantage we shall possess; another is in the technical perfection of the arms we now have, not only in regard to rifles and howitzers, but also, I believe—although I am not a great believer in air operations, under present conditions, on the frontier—that in course of time aeroplanes will be of great assistance to us.

Then the lecturer spoke of the great advance made in technical equipment, and he also alluded to the superiority of the Afghan army of the present day as compared with the army of the past, more especially in the perfection of its technical equipment. With regard thereto my own idea is that, although modern technical equipment is very useful and, perhaps decisive, in the hands of people who know how to use it, it is not of any great advantage to an enemy who is on a much lower plane of civilisation. In the first place, he will not keep it in proper order, and thus much of the value of technical equipment in his case is lost. Take aeroplanes as an example: I could tell you at the present moment of three oriental potentates who have been supplied with aeroplanes, either by the Bolsheviks, or by the Italians, or by the French, and I think I can truly say that, although between them they have got at least a dozen aeroplanes, there is not one that can fly in the air. The reason they cannot fly is because their owners do not keep their machines in proper condition, and also have no experienced airmen. Therefore, when it comes to practical politics, even a few British aeroplanes on the frontier would be far more useful than any paper air force that may be across the frontier. That is only an example, but I think it applies also to a great deal of what may be said in other respects. For instance, and I think sir Raleigh Egerton will bear me out in this, we have gained an enormous advantage of late years by the introduction of light howitzers. I remember how, in the frontier campaigns of 1897, we were handicapped by our low trajectory mountain guns. You could fire away at the crest of a ridge, but you could not get down to the people behind the ridges; whereas, with the modern howitzer, you can make it very hot for them. I think, therefore, that we are in a far superior position to-day to what we were then. With all such technical advances I think it is the civilised army and the well-trained, well-led army that will really benefit, not the forces which have neither proper training nor proper leaders.

Another point I noted down during the lecture was the question of the new *esprit de corps*. Well, there is a great deal that might be said about that, but I must not waste your time over it, and I will try and conclude my remarks on that subject as rapidly as possible. There is much to say, both from the point of view expressed by sir Raleigh Egerton, and also that expressed by the lecturer. In the first place, I do greatly regret the loss of what we used to call "*regimental esprit de corps*," and I know as well as he does the value that our officers, both British and Indian, and also the men themselves, attached to their regimental traditions. At the

same time, I must admit that I agree with the military authorities in India who thought it necessary to regroup the army—to disorganise it in order that they might reorganise it. In certain respects I did not approve, and do not approve, of the way in which the army has been reorganised; still, on the whole, I agree with the lecturer that it has now all the elements of future improvement and I hope that with the class of officer we now have in the army, that improvement will grow, in spite of the fact that the changes made have gone very much against the grain of many of those now serving. One thing I am quite sure of, and that is that it is not the regimental officers who will be at fault if things do not go well. I have seen a number of officers who have come home of late and whom I have met either at the India Office or at my club, or elsewhere, and I have talked to them about the condition of things in the army and contrasted it with the conditions as I knew them ten years ago. I have been greatly struck by the fact that they are all hopeful and optimistic and expect that the army will rapidly improve, as I sincerely hope it will. I believe a new regimental *esprit de corps* will be created and that, if it is, we shall owe it entirely to the officers now serving.

There is one more point I would like to make a remark about, and that is indianisation. Indianisation is rather a difficult subject to speak on, but I have been more or less familiar with it now for about 20 years, or even longer. This subject was trifled with, or not much more than trifled with, in the days of Lord Roberts, the Duke of Connaught, Sir George Chesney, Sir William Lockhart and others of the old school, with whom it happened I was in intimate relation as a staff officer or otherwise. I know that it was a subject which they all had very much at heart. But they all saw the difficulties at the time, and so no real progress was made. A further step has now been taken, largely under what I may call political pressure, and an effort is being really made to indianise the service. So far the intention and objects of the government have been a failure, for the reason that indianisation is not popular with anybody. Of course, we know it is not popular with the British officers generally and, as the lecturer told you, it is not even popular with the Indian officers. When I speak of Indian officers I mean, of course, natives of India who got commissions in the army. They dislike going to these indianised battalions and I have heard of two cases of officers who have resigned rather than go to them. I suppose that in course of time a change will come, but whether the experiment will be a success or not it is impossible to say. Anyhow, for the reasons given by the lecturer, we are bound to make the attempt just as much, apparently, as we are bound to make the attempt to establish political reforms. This I will say for my brother officers of the Indian army, that I hear from all sides that they have given the Indian officers their very best chance and I have not heard a single complaint by them regarding their treatment by their British brother-officers; quite the contrary! On the other hand I have seen it in writing that they have said they have nothing to complain of as regards their treatment by their brother-officers, but what they do feel is—and I think it is only natural—that they are not received generally in society on the same footing, and that they have not the same social standing, if I may without offence use that expression, as our officers have. All that is quite natural and it will take time to live down, but I think we may hope that in course of time there will be some degree of indianisation which will prove successful, though I do not for a moment believe that what the Indian agitator and the Indian politician generally hopes for and aims at, namely, a very rapid indianisation of the Indian army, is possible, for the reason that it will not be popular either with the officers or with the men.

I see by the clock that time is running on and therefore I will make no further

remarks. I thank you for listening to me and I am sure you will all join in a very hearty vote of thanks to the lecturer for his interesting discourse.

MAJOR-GENERAL SIR GEORGE SCOTT MONCRIEFFE, K.C.B. : I am sure you will all agree with me in passing a hearty vote of thanks to sir Edmund Barrow for presiding here to-day. The lecture itself, interesting as it was, would have been incomplete without his very interesting criticisms and I am sure you are grateful to him for making them.



THE BATTLES OF SALT, AMAN AND JORDAN FROM TURKISH SOURCES.

By SKANDER BEY.

PART I.

I. PREPARATIONS ON THE JORDAN FRONT DURING MARCH, 1918.

TOWARDS the middle of March the 48th division received orders to move from Katrana to Salt. These orders emanated from the commander of the Jordan group which had been newly formed in Aman. Up to this time the 48th division had been attached to the 8th corps in Katrana which was to move to Tafilah. On the formation of the Jordan group the 8th corps came under the latter's orders.

While at Katrana the duty of the 48th division had been to guard the railway from Zarfa to El Hasia and to get in touch with the Arab nomadic tribes in the neighbourhood. A large part of the troops in the division had been dispersed at the time of the move to Tafilah, which had been carried out under the orders of the former commander, the late lamented Kaimakam Hamid Fakhri Bey. Several detachments, such as the 1st regiment of artillery and a portion of the machine gun detachments, had been placed under the orders of the 20th corps after the defeat at Jerusalem. Other detachments were under the commander of the Deraa area, doing duty as railway guards. Consequently, while at Katrana, the division had hardly more than 2½ battalions and one two-gun field battery, and this small force was spread over the length of the line. The sanitary section had been divided, as well as the field hospital. One detachment was in Aman, another had been attached to the force taking part in the move on Tafilah. Lately the mounted detachment had also been taken from the division for the same purpose. The bakery section, even, had been divided, and only 20 men were with the division. Consequently there remained at headquarters—

- a guard composed of infantry and gendarmes,
- a band,
- a telegraph detachment reduced to 10 men,
- an engineer company.

On receipt of orders to proceed to Salt the band was also taken up by the 8th corps. Thus, divisional headquarters, composed of seven or eight officers, with the above-mentioned guard, moved to Salt *via* Aman.

Ali Riza Pasha, the commander of the Jordan group at Aman, had not yet been able to organise his headquarters, and was in an unenviable

position. At that time the Jordan front was in the area of the 7th army. On its arrival at Salt, the defence from Um Shert to the Dead sea was allotted to the 48th division, and the detachments on the front automatically came under its orders. At first it was thought that a fairly large force would be found in this locality. But on taking over we were astonished to find—

80 men of the 2/59th infantry regiment,
56 men of the Circassian volunteer detachment,
46 men divisional mounted company,
30 men camel corps,
1 section field battery.

I say "astonished" because this important front was 30 to 35 kilometres in length, guarded the line of communication to Arabia and Hedjaz and the line of retreat from Arabia. The defence of the Jericho-Salt road, which before had been covered by the 20th corps, passed to the weak detachments mentioned above, and was in the Jordan group area.

When visiting group headquarters at Aman, the importance of the front was urged upon the commander, and it was suggested that other troops could be withdrawn from the Tafilah force and diverted from the Hedjaz line. From the very first I had been opposed to the Tafilah expedition, and directly I arrived with my headquarters at Aman, I spared no efforts to bring back the troops which were being wasted in the desert.

On arrival at Salt with my headquarters, a new battle organisation was given to the division. In conformity with this distribution, besides the forces on the bank of the Jordan, the 126th and 703rd German infantry battalions from Tafilah, a mule mounted regiment and one or two batteries came under my command. How long do you think this rearrangement of troops took? One cannot realise it here. Even by utilising the Hedjaz railway, which could only despatch one train a day at the most, the arrival of the troops on the Jordan took more than a month. In addition, the extreme difficulty of transport and many other causes of delay had a great effect on our mobility. Moreover, the Tafilah expedition had been considered most important. Far from recalling troops from there, it was insisted that the column should be reinforced.

In order to see the Jordan front, which was not accurately shown on the map, and also to be personally acquainted with the ground, I went with my headquarters on 15th March to Tel-el-Namrin. The latter is at the end of the Wadi Namrin, which is traversed by the Jericho-Salt road. I visited Kaimakan Umr Lutfi Bey, commanding the Haman detachment, and inspected the troops and the front. Afterwards we traversed the whole length of the Jordan, and I was able personally to appreciate the topography of the front. I divided the front into two sectors.

Number 1 Sector.

Organisation of the front held by the 48th division.—Entrance of the Wadi um Shert to the valleys leading to the Jericho bridge, both inclusive.

Commander.—Kaimakan Umr Lutfi Bey.

Troops.—2/59th infantry. 1 field battery.

Crossings of the Jordan in the sector.—Um Shert, Wadi el Auja, El Mandesa, Jericho bridge.

Number 2 Sector.

Jericho bridge exclusive to the Dead sea.

Commander.—Yuzbashi Ahmed Effendi.

Troops.—59th mounted company, camel company, Circassian volunteer detachment.

Crossing of the Jordan in the sector.—Ain El Harar, Mujdat Hajle, El Hanu.

Two crossings lower down, names unknown.

The divisional guard and the engineer company were formed as a general reserve. Divisional headquarters remained at Tel-el-Namrin. As the telegraph detachment had nothing but a few telephones, it was only possible to lay a line to Umr Lutfi Bey. To connect up with Ahmed Effendi, 15 kilometres from our headquarters, was beyond our powers, and mounted orderlies were utilised.

In view of the importance of the front and the paucity of troops for its defence, I had approached the group commander with the request to withdraw troops from Tafila a month before. Unfortunately, beyond repeating his first order to the 8th corps, he did nothing.

Communication was maintained with group headquarters and Aman through the Salt telegraph, but this line was liable to interruption by the Arabs. A system of despatch riders was not practicable, owing to the small number of mounted troops.

It was very evident that the enemy was pushing forward his preparations on the Jordan front, and would pass to offensive in the near future. Seeing that my own efforts on the Jordan front were not having much result, I put the situation before the 20th corps commander in the 7th Army, and appreciated the position as follows :—

- (1) An early attack on the Jordan front was probable.
- (2) After throwing back the weak troops from this front, the enemy would probably advance along the Salt road and up the east bank of the Jordan, *viâ* El Damia, to threaten the position of the 7th army.
- (3) Consequently, until the arrival of the forces of the 48th division it was urged that one or two battalions and a regiment should be placed on the Jordan front.

Although the 20th corps was well aware of the situation and approved of my appreciation, the commander replied that he had no forces to spare, and that my report had been sent to the 7th army as a matter of great importance. Finally, as a result of the urgent requests from the group commander we were informed that the 703rd German infantry battalion would be placed at our disposal and would arrive at Aman in the course of a few days.

Arrival of reinforcements.—Seeing that the enemy's preparations were progressing day by day and that the danger was momentarily nearer, I rapidly drew an infantry company to Tel-el-Namrin from the protective detachments on Zarca-Jeza line and placed it near the Jericho bridge. From the other side of the Jordan group area the machine gun detachment of the 2/126th regiment, two rifle regiments, with a machine gun company which had arrived at Aman from Damascus, and the 808th machine gun company from Katrana, were sent to Tel-el-Namrin. The machine gun detachment of the 2/126th regiment only contained five to ten animals, and the guns arrived by motor transport. The machine gun companies and the rifle regiments had their full complement of animals. The 808th machine gun company was an Arab formation. A redistribution of animals was therefore made, and the 2/126th was brought up to strength. But pack saddles were non-existent, and the guns had to be carried in sacks. These troops were located as follows:—

Number 1 sector. Kadri machine gun company.

Number 2 sector. 2/126th machine gun company.

Reserve at Tel-el-Namrin. 808th machine gun company.

A day later arrived Lieutenant Henig with a German machine detachment composed of Turks and Germans. It had been formed for service in Persia, but had been sent post-haste to this front. It was located in Number 1 sector to guard the important point at Jericho bridge.

While I had been complaining of my lack of troops in this difficult situation, some ridiculous orders came from group headquarters which are worthy of attention—

(1) "It is probable that the enemy contemplate an offensive against the left flank of the 7th army from the west of the Jordan. In such circumstances it will be the duty of the group to attack the enemy's right flank and rear. In order to penetrate the enemy's intentions, patrols must cross the Jordan at night and carry out extended reconnaissances."

(2) Another order outlines the duty of the 48th division and how it should be carried out, and gives instructions that preparations for the crossing of the Jordan should be carried out at once.

Did they know what the Jordan troops consisted of? Of course they did. Everyone knew the situation. Either the new chief of the

staff of the group, who was in touch with the German headquarters, merely repeated orders which he received from the Germans, or he merely issued these orders to satisfy himself and the higher command that, in the event of the 7th army being attacked, the Jordan group would not be left isolated, but would be able to co-operate.

If the division had been a properly constituted and homogeneous body, these orders would, perhaps, have been feasible. But, considering that a front of nearly 40 kilometres was held by a force of 80 to 100 infantry, a few cavalry and some machine gun detachments, they were quite ridiculous.

On the 21st March the group informed us that two companies of the 703rd German infantry had arrived at Aman, that they had suffered many casualties in their march to Tafila, and were very exhausted. A halt at Salt or Aman for some days was an imperative necessity. In reply, it was pointed out that the companies could rest equally well at the front, that enemy headquarters had lately advanced to Jericho, and it was absurd to leave these troops two marches from the front. Consequently, it was urged that they should close up immediately. As a result the companies continued their march forthwith. They arrived at Tel-el-Namrin on 12th March, and were sent to army headquarters, just in front of divisional headquarters. The 703rd German battalion had a special organisation as follows:—

Each company had 9 light machine guns, a dismounted detachment of 5 to 10 guns, a detachment of 30 mounted men, a telephone detachment. But a part of the companies which came to the Jordan was still on the road and had not arrived.

About midnight of 22nd/23rd March a hostile reconnaissance patrol approached the Jericho bridge. Owing to the vigilance of our post and the machine gun detachments it was repulsed. One boat out of three which tried to cross the river on the windward side of the bridge was sunk. The remainder retired with several casualties.

The beginning of the battle, 23rd March.—During the following morning the enemy advanced against the Mujdat Hajle, crossing in number 2 sector. As we had no telephone communication here, news came to hand rather late. Ahmed Effendi, the section commander, lacked the will to resist, and his reports were written in a most unbalanced manner. I hurried to his section immediately to see for myself what was happening. Acting on the section commander's report, I ordered the advance towards Wadi-el-Ramah of the 4·7 battery detachments of the German companies who were in reserve to drive back the enemy who had crossed to our side. The latter had, in fact, crossed by the Mujdat Hajle crossing, encountering strong opposition from our post in the locality. Further down, opposite El-Hanu, a number of cavalry had crossed to the east of the Jordan. In moving towards the rear of the other crossings they were repulsed by our outposts. The enemy's movements were supported by artillery fire from the west. Immediately on arrival, four guns opened fire and the enemy retired. Near Kabarfundu I stopped the German

companies which had arrived on the left flank. From my own reconnaissance that day I gathered that the enemy wished to cross at Hajle and would probably try to throw a bridge across the river during the night. With a view to a night attack by the German companies I went to examine the ground. Right up to the banks of the river the *terrain* is absolutely level, and nothing could be attempted in daylight under artillery fire.

During the day lines of approach were examined and the guns registered. At 5 p.m. I sent two German companies from Kabarfundî to Mujdat Hajle pass for the attack. Towards 7 p.m. they approached this locality, finding no signs of the enemy. All was quiet opposite the crossing. But I was convinced that the enemy's action during the day had been a reconnaissance, and that perhaps he would make a real attack during the night. The German companies, therefore, once more went forward to the Jordan bridge. At Ain-el-Harar, Mujdat Hajle and El Hanu crossings our machine gun posts remained undisturbed throughout the night.

The enemy crosses the Jordan, 24th March.—The following day, i.e., 24th March, I received a report from No. 2 sector saying that the enemy had opened heavy artillery fire during the morning from opposite the bridge. Two hostile cavalry troops opposite the mouth of the Jordan had then advanced on El Hanu, approaching our post at this crossing, while a third troop advanced on Kabarfundî. The German companies were immediately ordered to Wadi-el-Ramah, but as the enemy had divided his forces into two wings, one advancing on the Jericho bridge *viâ* Ain-el-Harar, the other on Tel-el-Namrin, the Germans were forced to take position on the Wadi Namrin in the hope of checking the onslaught. At the other end of our line Lieutenant Colonel Umr Lufti Bey had seen the danger to his position and had advanced his reserve company also to succour the troops in the south near the bridge, which were being threatened by the enemy's advance on their rear. The guns in Wadi Namrin opened fire with effect on this hostile body. As for our troops in No. 2 sector, though some were captured, about 20 men of the camel corps and 30 cavalry of the 59th divisional troops withdrew to El-Kafrin. When the machine-gun company of the 2nd/126th was surrounded and captured the majority of the Circassian volunteers bolted, as was expected. The few that stood firm (under the orders of the sector commander) checked the enemy's advance in a position at the head of the valley.

Withdrawal to Tel-el-Namrin.—By noon the cavalry regiment which had advanced on Tel-el-Namrin had been repulsed with loss. But on the other side the enemy, who had crossed the Jordan, were gradually approaching Ain-el-Harar. Besides cavalry, long infantry columns were seen advancing. The enemy were evidently attacking the crossings with large forces. Strong columns were advancing on El Hanu and Mujdat Hajle from the west. It was impossible to let group headquarters at Aman know what was going on, as the telegraph line from Tel-el-Namrin

to Salt had been cut by Arabs. Mounted orderlies could traverse the distance in not less than eight hours, and the orders of the group commander could not reach the division in less than another eight. The position in the plain during the night was, therefore, very dangerous. During the morning the posts on the other crossings had retired after

JORDAN FRONT.

TROOPS ON THE FRONT		TROOPS ATTACHED SUBSEQUENTLY	
2/59 th Infantry	80	2/126 th M. G. 4 Guns	40
Volunteer Cavalry	50	Kadri M. G. det. 2 Guns	30
Circassian Volunteer Cavalry	50	808 th M. G. det. 4 Guns	30
59 th Cavalry Squadron	40	Composite det. 6 Guns	50
Camel Squadron	30	703 rd German Infantry	200
4.7 Field Battery (2 Guns)	30		



SCALE
MILES 5 4 3 2 1 0 5 10 15 MILES

suffering heavy loss, and the chief danger lay in the fact that the enemy had been able to send strong forces across the Jordan. It was vital to hold the Tel-el-Namrin position with all available troops in order to deny the use of the Jordan-Salt road to the enemy. Consequently orders were sent to Colonel Umr Lufti to withdraw during the night

and concentrate his forces in a position north of Wadi Namrin. An attempt had been made to strengthen this position, but little progress had resulted owing to lack of tools and men.

PART II.

II.—THE BATTLE OF TEL-EL-NAMRIN.

Organisation of the position.—Great efforts were made during the night, and by the morning of 25th March the Tel-el-Namrin position was occupied as follows :—

Heights north of Wadi	...	1 German company.
Heights south of Wadi	...	1 German company.
Behind the right flank	...	Detachment of the 2/59th regiment. Kadir M.G. detachment.
Behind the left flank	...	10 men, 150th regiment. Divisional engineer company. 808th M.G. company.
In reserve	...	Field artillery detachment.

Near the entrance to Wadi Namrin in addition, a four-gun battery which had arrived the day before by motor transport with no harness and limited ammunition was located with the reserve.

The Attack, 25th March.—The enemy forces which had collected east of the Jordan by the evening of 24th March, and were estimated at one infantry division, two cavalry divisions and one camel brigade, advanced to attack the Tel-el-Namrin position in the morning of 25th March. Before the attack enemy aircraft bombed the position with great effect. Though the length of the position was two kilometres, the flanks were in the air and liable to be turned. But with the weak forces at my disposal it was impossible to extend the front.

After a preliminary bombardment the enemy advanced to the attack. A force of cavalry, estimated at three to four regiments, advanced on Wadi Kafrin, while another cavalry column was directed on Wadi Madan and Wadi-Abu Tara. The enemy were checked by our artillery and machine gun fire. But the enveloping movements round both our flanks were having their effect. Especially was the threat to our right flank serious, as it endangered our communications. To counter these movements the reserves behind the flanks were gradually absorbed in the front line.

The Retirement to Salt, 25th-28th March.—Up to 3 p.m. the combat went on with great vigour. The loss of El Houd hill, which commanded our right flank, rendered our position most precarious, as the enemy were able to bring the Salt road under machine gun fire. Further resistance would have resulted in the capture of the force or retreat into the desert to the east. Consequently the German companies were ordered to retire, disputing every inch of the ground. These well-trained troops carried out their rôle admirably, the enemy being quite unable to close with them.

The Turkish detachment on the Germans' flanks also retired, and thus the whole force escaped envelopment.

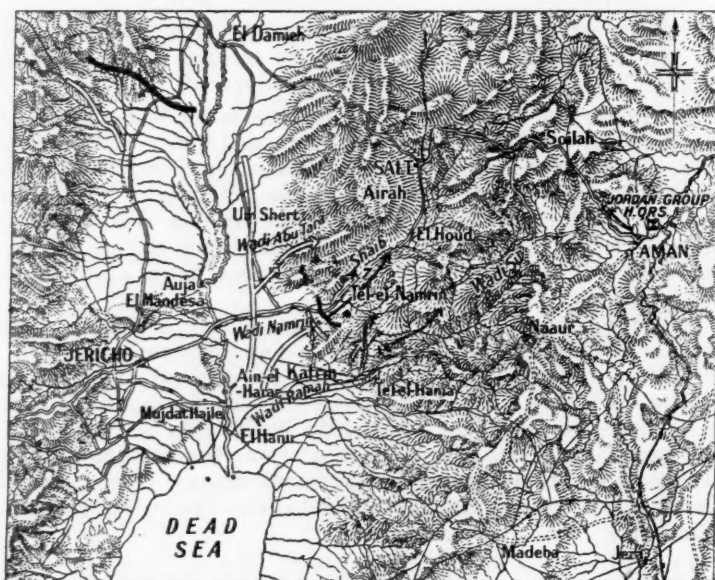
Towards 7 p.m. the force arrived at Shaib bridge. A mounted orderly sent from Aman brought an infantry company and a mountain battery to this point and a short halt was made to re-organise the troops. The enemy was too worn out, and only small detachments pursued beyond the line of El Houd hill. Patrols sent out on the right and left flanks reported that a force of about four cavalry regiments was moving on the Wadi Sir, and another body mounted of several regiments was approaching Wadi Madan.

THE RETIREMENT ON SALT.

CASUALTIES TO FORCES.

2/126th Infantry. Captured.

Mounted Volunteers } Bolted during
Circassian Volunteers } the fight.



SCALE
MILES 5 4 3 2 1 0 5 10 15 MILES

Wadi Sir is on the road from the Jordan to Kafrin. Though this route is not of the same class as the Salt road, it is quite suitable for cavalry. Even if it had no other route the enemy cavalry could reach

Aman the following morning from this direction. On the other flank the cavalry moving on Airah could advance direct on Salt. The Airah-Salt road was the better of the two. Judging by reports it was dangerous to remain at Shaib. In a message sent to the group commander after our arrival at Shaib regarding the military situation, it had been pointed out that the stand at Shaib would mean the gain of 24 hours. But it was realised that the continuous enveloping movements of the enemy would put Aman and Salt within their reach. However, further reports changed the situation. By moving on Salt and forestalling the enemy it was thought a satisfactory resistance could be offered. At midnight, after a short halt, the force moved on Salt, where it arrived at 4 a.m. on 26th March.

(To be continued.)



THE GERMAN 24TH DIVISION IN THE OFFENSIVE OF MARCH, 1918.

*(From an article in "Im Felde Unbesiegt," Vol. 2, by Major Holthausen,
then commanding the 2nd Battn. 139th Infantry Regt.)*

THE 24th division, in March, 1918, formed part of the Seventeenth Army, which together with the Second Army had the task of first eliminating the British salient south of Cambrai and then returning on Bapaume-Albert and beyond in conjunction with the Eighteenth Army and the south in the direction Doullens-Amiens. On March 21st the division was in army reserve around Oisy-le-Verger and on the 22nd it moved forward to west of Mœuvres, whence two regiments, the 179th and my own, the 139th, proceeded later to Demicourt. The capture of Hermies had been reported, but wrongly, and my regiment therefore returned that same evening to Boursies, where we arrived after nightfall, and thence broke off southwards towards Doignies. Half way to this place the men were ordered to fall out and lie down to the left of the road; the regimental commander and his staff went forward to the village.

Tired by our exertions during the long day's march, we made full use of this respite to get some sleep. I was roused about 4 a.m. by a messenger ordering battalion commanders and their adjutants to join the regimental staff at Doignies château. I arrived after some 20 minutes' walk at the ruins of the village and found Col. Süsmilch conferring with his officers behind the shelter of the château wall. From this exposed position the bombs of hostile aeroplanes which came over at this moment forced us to withdraw to cellar in the building itself.

Our orders were that the regiment was to attack Vêlu, 1st and 3rd battalions in first lines, 2nd in second line, with the 139th regiment in support. For this attack we were to deploy on the south-west edge of Doignies, and to come under the orders of the 3rd Guard division. The 133rd regiment was to remain in the hollow road north-west of Boursies as corps reserve. We were to be ready to advance at daybreak. As it was now 5 a.m., it was hardly possible for us to be in position by that time, and in fact the battalion was only on the move to Doignies by 6 a.m.

As we passed through the village and moved out in the growing light to our assembly-place behind a small rise, we came under enemy machine-gun fire from the left, which caused us a few casualties, including Lieut. Friede, in command of the battalion machine-gun company.

NOTE.—The 24th German division, during the period covered by the article, was engaged with the left wing of the British V. Corps of the Third Army, and, so far as can be ascertained, with the 2nd and 3rd divisions.

However, we reached the shelter of the little ridge, and distributed ourselves for better cover in the shell holes around while waiting for the signal to advance. Shortly after our arrival a British aeroplane, observing for its artillery, discovered the battalion, and we were at once subjected to shelling which necessitated the wider extension of our lines. Finally, as our own guns had now opened against the hostile lines south-west of Doignies, I decided to bring the 2nd battalion up into line with the 1st and 3rd.

By about 9 a.m. our forward lines of skirmishers, working forward, had established themselves in a cutting close up to the position to be assaulted, and here we lay waiting for the lifting of the barrage, which was raging with intense fury a short distance to our front. As we looked, to our right front lay Beaumetz, and, straight before us, the scattered traces of its château park plainly visible, the village of Vélú, our objective.

At about 10 a.m. our barrage lifted, and in a united rush we dashed forward and, passing rapidly over the enemy's front trenches without halting, continued on towards the rising ground south-west of Beaumetz. My battalion, following closely behind the 1st and 3rd, advanced in two lines, in front the 7th and 5th companies, in support the 6th and 8th; in rear the machine gun and trench mortar sections assisted in covering the advance of the remainder, firing from the high ground in rear. As we drew nearer the hollow ground south-west of Beaumetz our pace slackened and our losses increased; the hostile machine-gun fire became very effective, especially against the left flank and rear of our 1st battalion, which was exposed owing to the failure of the division on our left to keep pace with us. My 5th and 8th companies were despatched to deal with these machine gun nests, which were also subjected to heavy fire from our supporting artillery, now arriving in their new positions at a gallop. The hostile barrage on the hollow road was now intense, and I determined that it must be crossed as rapidly as possible.

Accordingly, the 5th, 7th and 6th companies in first line, followed by the machine gun and trench mortar sections, were directed by flag signal to pass through the 1st and 3rd battalions and continue the advance. Up we rose and went forward at full speed under a hail of bullets from the enemy. As we approached the hollow way I came on the Colonel in a shell hole, "Well done, the 2nd battalion!" he cried as I passed. Breathless, the line reached the road and threw itself into its shelter; then went up and on again, under redoubled shell and rifle fire. The hostile barrage, fierce as it was, could not check the advance of the 6th company, which pressed through it, despite losses, straight on Vélú; the 7th, moving to its right round Beaumetz in the zone allotted to the 3rd Guard division, where the fire was less heavy, came up again level with its comrades, having suffered few casualties. The two companies assembled to recover their breath and restore their order in a second sunken road some 200 yards to the left front of the first, where British dead and wounded lying around attested the effect of our artillery fire.

After a minute or two's pause we attempted to renew our advance,

but on rising from our shelter were caught and forced to lie down under cover again by a burst of hostile shell fire. I myself was slightly wounded in arm and shoulder, and several other casualties occurred. Our men then began to creep forward one by one from shell hole to shell hole and then by short rushes, and by this means reached the shelter of the railway embankment leading to Vélú. Despite the heavy fire directed on us by the British, nothing of them was to be seen. Here followed a second pause. The 7th company was in position to my right front, the 6th was nearer to me. Several sections of the 179th regiment had joined forces with us. It was now about noon, and I directed to my adjutant a short report of the situation, which was at once sent off by runner. As it turned out, this never reached its destination, the regimental staff.

By this time the British fire was dying down and as we worked along the railway embankment towards Vélú, we saw everywhere the signs of a hurried retreat. As we entered the railway station, the hostile rearguards were just leaving the park of the château, and suffered loss from our 7th company and parts of the 3rd Guard division who were following hard on his heels. The 6th company and our comrades of the 179th opened fire on him as he fell back, as did also our machine guns and trench mortars. Our men uttered loud cries of triumph as they saw the enemy fleeing and falling. The clearing up of the park was at once taken in hand, while the troops not required for this task were divided, parties being sent southwards and northwards to assist the 3rd Guards and 119th divisions, by taking in flank the enemy opposed to them. The 179th regiment continued its advance westward, so as to menace the main hostile line of retreat. The execution of these measures, however, was somewhat delayed by the fact of our men finding an abandoned British supply dépôt stuffed with good things, the like of which had not for many a long day passed their lips, and it was by no means easy for us officers to tear them from the feast thus spread before them so temptingly.

Meanwhile the 7th company, pressing forward to the south, were lucky enough to secure a couple of British guns which were still in action outside the park, after shooting down or driving off the gunners. By 1 p.m. it had been reported to the regimental commander that Vélú was in our hands. The hostile artillery was silent, probably because it was changing position; we seized the opportunity to reorganise our forces and redistribute them in depth for defence against the expected counter-attack. Weak skirmishing lines were thrown out to west, south and east of the village; headquarters took up a position in the north-east corner of the park. Two heavy machine-gun sections in action on the railway embankment to the east of us directed most effective fire on the hostile lines facing the 119th division. These were soon observed breaking and fleeing, leaving behind numerous prisoners.

Meanwhile the 179th, pressing rapidly forward, saw the enemy's artillery supply columns and trains streaming back in confusion along all the roads leading westward, and brought fire to bear on them, changing their retreat into a rout.

About 2 p.m., British troops from the direction of Lebusquière delivered a counterstroke with the object of relieving the pressure on their rearguards; it was repulsed with loss. Some two hours later a German contact machine flew over our heads and brought back to the divisional headquarters the first news that Vélú was in our hands.

At 5 p.m., and shortly after, we were joined by three other battalions of our regiment and the 179th regiment, who were to continue the advance in the direction of Haplincourt. Their progress soon came to an end before the strongly fortified first Bapaume line, in front of which the companies dug in while waiting for the assistance of our artillery. At 6 p.m. we were ordered to consolidate our gains and prepare to renew the advance next day.

That evening the regiment suffered a severe loss, Col. Süsmilch being wounded and incapacitated. Major Demmering, the commander of the 3rd battalion, took his place. By his orders the battalion was assembled in the park, with outposts on the edge to east and south, and the men bivouacked to get what sleep they could amid the continuous roar of the hostile guns.

Next morning, the 24th, broke in a thick mist, which concealed our preparations for the attack on Haplincourt. Owing to the obscurity, the artillery could not open before 11 a.m. The 139th and 179th regiments moved forward side by side in first line, with the 133rd in support. My battalion was placed between the 179th regiment and our 1st battalion.

Hostile machine guns hidden amid the trenches and wire which strewed the country over which we were now to advance opened as soon as we began to move. Their main position was quickly located on a ridge some 1,000 yards in front, and subjected at once to violent machine gun and shell fire. In a few moments the enemy's fire died away and our infantry resumed their progress.

By 12.30 p.m. the first enemy trench was in our hands and in a short time after the second also. Here we paused for a space, and we observed that our neighbours on the right—our 1st battalion, and beyond that the 3rd Guard division—were well up on a level with us; but the 179th, delayed by the explosion of a minefield among their foremost sections, were some little distance in rear. Before long they secured the hostile trenches in their front with little difficulty. A few isolated machine gun nests in our rear which were still resisting were effectively dealt with by our supports.

When our first wave passed over the last ridge in front of Haplincourt, nothing was to be seen of the enemy; my battalion, therefore, descended into the village which lay in a valley some 350 yards further on and I myself hurried forward to the crest on the far side of the dip to reconnoitre the country beyond. Just as I crossed the ridge I saw, to my astonishment, some 50 yards in front of me, British tanks and infantry moving forward in order of attack!

In an instant I had passed the warning signal back to my men, who rapidly took up position in some old disused trenches half way up the slope

from the village. The machine guns firing with armour-piercing ammunition opened on the enemy machines as they came over the skyline into view; our anti-tank rifles and trench mortars joined in. Their fire at such short range was deadly; one of the tanks, struck in the petrol tank, burst into a sheet of flames. At that moment our artillery began to direct shell after shell into their midst; one after another they stopped, and their crews, trying to escape, fell into the hands of the infantry, who rushed forward and surrounded the shattered machines. Only one of these great monsters managed to turn round and make its escape. Our own losses, despite our victory, were considerable.

The advance was resumed, and the resistance of the enemy in the second Bapaume line around Villers-au-Flos, stubborn as it was, was overcome before nightfall, which found us in full possession of our objectives, Beaulencourt and the Bapaume-Péronne road in its vicinity.

That night the 133rd regiment relieved us in first line, and on the 25th our advance was pushed as far as Irlès and Miraumont. The 26th saw the division in second line to the 4th division attacking towards Sailly. These operations did not meet with all the success expected.

We were relieved on the night of March 28th-29th. During the five days' fighting the enemy had been driven back close on 20 miles, and had left behind in our hands 1,300 prisoners, 5 guns, 9 tanks and 250 machine guns, together with quantities of rifles, ammunition and stores and material. Our casualties amounted in all to 141 officers and a little over 3,000 men.



NAVAL NOTES.

(Quarter ending 25th March, 1924.)

GREAT BRITAIN.

FLAG COMMAND CHANGES.

On 3rd January Vice-Admiral Sir William Goodenough, K.C.B., M.V.O., was appointed commander-in-chief at Chatham in succession to Admiral Sir Hugh Evan Thomas, K.C.B., K.C.M.G.; and Vice-Admiral the Honourable Victor Stanley, C.B., M.V.O., was appointed to the command of the reserve fleet in succession to Sir William Goodenough.

On 8th January Major-General R. H. Hutchinson, C.B., C.M.G., D.S.O., was appointed adjutant-general of the Royal Marines in succession to Sir Hubert Blumberg.

In January Captain Thomas E. Wardle, D.S.O., was appointed as a commodore 1st class to succeed Rear-Admiral Albert P. Addison, C.M.G., in command of the Australian fleet.

On February Rear-Admiral A. A. M. Duff, C.B., was appointed director of naval equipment in succession to Rear-Admiral Douglas L. Dent, C.B., C.M.G., and Rear-Admiral W. H. D. Boyle, C.B., was appointed to the command of the first battle squadron of the Atlantic fleet in succession to Rear-Admiral William A. H. Kelly, C.B., C.M.G., M.V.O. Rear-Admiral William Kelly is to be fourth sea lord and chief of supplies and transport.

On 1st February Rear-Admiral C. D. Johnson, C.B., D.S.O., M.V.O., relieved Rear-Admiral John Luce, C.B., as Admiral in charge, Malta.

On 13th March Admiral Sir Henry F. Oliver, K.C.B., K.C.M.G., M.V.O., was appointed to be commander-in-chief of the Atlantic fleet, in succession to Admiral Sir John M. de Robeck; Vice-Admiral Sir Michael Culme-Seymour, Bt., K.C.B., was appointed to the post of second sea lord in succession to Sir Henry Oliver; and Vice-Admiral Sir James A. Fergusson, K.C.M.G., C.B., was appointed to be commander-in-chief of the North America and West Indies Station.

On the same date Mr. W. J. Berry, C.B., director of warship production, was appointed director of naval construction in succession to Sir Eustace Tennyson d'Eyncourt, who resigned the post on 31st December, 1923.

OBITUARY.

During the past quarter naval literature has suffered a loss in the death of Mr. John Leyland, an honorary member of the Royal United Service Institution. He was the author of many articles in Brassey's Naval Annual, and for many years had prepared a great deal of its statistical matter. He successfully edited the *Army and Navy Gazette* and the *Navy*. His best known work was "The Royal Navy, its Influence in English History and the Growth of the Empire."

NAVAL ESTIMATES.

The naval estimates for the coming year were presented to Parliament in March. The net total is £55,800,000, a reduction of £2,200,000 on the estimates for last year. "Translated into pre-war figures, by making allowance for increases in wages and material, the total of £55,800,000 would represent, approximately,

£34,500,000, of which £29,848,200 would be for effective services." Naval expenditure is, therefore, well below the 1914 standard.

Apart from the completion of vessels already in hand, the only provision for new building is the sum of £1,800,000, which has been set apart for five light cruisers and two destroyers. The sums allocated to the various votes are as follows :—

Votes.		Estimates, 1924-25.	
		Gross Estimate.	Net Estimate.
	I.—NUMBERS.		Maximum Numbers.
A.	Number of Officers, Seamen, Boys, and Royal-Marines	100,500	100,500
	Number of Coast Guard, and Marine Police	287	287
	II.—EFFECTIVE SERVICES.	£	£
1	Wages, &c., of Officers, Seamen, and Boys, Coast Guard, and Royal Marines	14,332,900	14,245,000
2	Victualling and Clothing for the Navy...	5,177,120	4,258,100
3	Medical Establishments and Services ...	494,239	462,500
4	Civilians employed on Fleet Services ...	182,386	181,200
5	Educational Services	398,743	341,800
6	Scientific Services	498,472	440,000
7	Royal Naval Reserves	493,525	491,500
8	Shipbuilding, Repairs, Maintenance, &c. :—		
	Section I.— <i>Personnel</i>	7,110,083	7,045,000
	Section II.— <i>Matériel</i>	7,317,900	5,397,900
	Section III.—Contract Work ...	5,935,272	5,820,300
9	Naval Armaments	4,335,793	3,975,500
10	Works, Buildings, and Repairs at Home and Abroad	3,230,000	3,080,000
11	Miscellaneous Effective Services ...	925,090	856,100
12	Admiralty Office	1,235,276	1,229,500
	Total Effective Service... ..	£51,666,805	47,824,400
	III.—NON-EFFECTIVE SERVICES.		
13	Non-Effective Services (Naval and Marine)—Officers	2,903,167	2,884,300
14	Non-Effective Services (Naval and Marine)—Men	4,285,055	4,253,500
15	Civil Superannuation, Compensation Allowances, and Gratuities	838,224	837,800
	Total Non-Effective Services ...	£8,026,446	7,975,600
	GRAND TOTAL	£59,693,251	55,800,000

LOSS OF L 24 OFF PORTLAND.

During the past quarter, the country was affected by the news of a serious disaster off Portland. The Atlantic fleet, which had been assembling there during the previous week, left Portland on the 10th for their spring cruise. The submarine flotillas had preceded the heavy ships by some hours, for a submarine attack upon the battle fleet as it debouched into the open waters of the Channel was the first exercise of the cruise. The battleships were screened by destroyers, so that the submarines were compelled to get ahead of them and rise to the surface after the screen had passed overhead. The captain of L 24 successfully penetrated the screen, and rose to deliver his attack as soon as he thought the destroyers were clear of him. He broke surface almost under the bows of H.M.S. "Resolution," which rammed his vessel, and she sank in a few seconds. Five commissioned officers, one warrant officer and thirty-five ratings lost their lives. The lost submarine belonged to the second flotilla, under the command of a Captain "S," in the dépôt ship "Lucia." Another accident occurred during the operations: at another part of the attacking line of submarines, K 2 and K 12, belonging to the first flotilla, collided; K 12 was seriously holed, but managed to get back to Portland.

The wreck of L 24 was located about 10 miles south of the Bill and marked by a buoy. As soon as the necessary arrangements were completed, H.M.S. "Ross," with two divisions of submarines, the sloop "Sherborne," the submarine parent ship "Fermoy" and two "P" boats, went to the spot and paid the last honours to the dead. The ships moved at reduced speed, in three divisions; on getting near the wreck buoy, the burial service was read: the "Ross" then approached the spot and a wreath of lilies and chrysanthemums was lowered over the side. Throughout the service the weather was cold and wet.

THE EMPIRE CRUISE.

During the quarter the special service squadron carried out the following programme of visits:—

Port.	Arrival.	Departure.	Ships concerned.
Devonport F	—	27th November.	All.
Sierra Leone F	8th December.	13th December.	All.
Cape Town F	23rd December S.	29th December.	L.C.s.
		3rd January.	B.C.s.
Durban	1st January.	5th January.	L.C.s.
Dar-es-Salaam	12th January.	17th January.	1 L.C.
Zanzibar F.	12th January.	17th January.	B.C.
Mombasa	12th January.	17th January.	L.C.s.
Trincomali F.	27th January S.	31st January.	All.
Penang	4th February.	8th February.	L.C.s.
Port Swettenham	5th February.	9th February.	B.C.s.
Singapore F.	10th February S.	18th February.	All.
Freemantle	27th February.	1st March.	All.
Albany F.	2nd March.	6th March.	All.
Adelaide	10th March.	15th March.	All.
Melbourne	17th March.	25th March.	All.

ATLANTIC FLEET.

On 10th January the Atlantic fleet left Portsmouth to carry out the spring cruise described in the following table:—

Ship or Squadron,	Programme.
"Queen Elizabeth"	Gibraltar, 15th to 30th January; Madeira, 1st to 6th February; Teneriffe, 7th to 9th February; Las Palmas, 9th to 12th February; Gibraltar, 14th February to 8th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th to 29th March; Arosa Bay, 31st March to 4th April; Portsmouth, 7th April.
1st battle squadron, 1st division	Arosa Bay, 13th to 23rd January; Lagos, 24th to 30th January; Gibraltar, 31st January to 23rd February; Malta, 27th February to 7th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th March to 2nd April; Home Ports, 7th April ("Valiant" will proceed to Gibraltar on completion of refit, and join Squadron at Pollensa Bay.)
1st battle squadron, 2nd division	Vigo and Pontevedra, 13th to 23rd January; Gibraltar, 25th January to 11th February.
"Revenge," "Royal Sovereign"	Madeira, 13th to 18th February; Teneriffe, 19th to 21st February; Las Palmas, 21st to 24th February.
"Ramillies," "Resolution"	Las Palmas, 13th to 16th February; Teneriffe, 16th to 18th February; Madeira, 19th to 24th February.
Whole division	Gibraltar, 16th February to 8th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th May to 2nd April; Home Ports, 7th April.
2nd light cruiser squadron	Gibraltar, 15th to 30th January; Las Palmas, 1st to 4th February (1st division); Teneriffe, 1st to 4th February (2nd division); Teneriffe, 4th to 6th February (1st division); Las Palmas, 4th to 6th February (2nd division); Madeira and Porto Santo, 7th to 12th February; Gibraltar, 14th February to 8th March; Pollensa Bay, 10th to 15th April; Gibraltar, 17th to 25th March; Lisbon, 26th to 31st March; Arosa Bay, 1st to 4th April; Home Ports, 7th April.
1st submarine flotilla	Gibraltar, 15th January to 8th March; Pollensa Bay, 10th to 15th March; Malta, 17th to 25th March; Gibraltar, 29th March to 2nd April; Home Ports, 7th April.
2nd submarine flotilla	Gibraltar, 15th January to 23rd February; Malta, 27th February to 7th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th March to 2nd April; Home Ports, 7th April.

Ship or Squadron.	Programme.
" Princess Margaret "	Vigo and Pontevedra, 13th to 23rd January; Gibraltar, and as required, 25th January to 29th March; Arosa Bay, 31st March to 4th April; Portsmouth, 7th April.
" Assistance "	Arosa Bay, 12th to 23rd January; Lagos, 24th to 30th January; Gibraltar, 31st January to 8th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th March to 2nd April; Portsmouth, 7th April.
" Coventry "	Ferrol, 12th to 19th January; Huelva, 21st to 30th Jan.; Gibraltar, 31st January to 25th February; Malaga, 25th to 29th February; Cartagena, 1st to 6th March; Palma, 7th to 9th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th March to 2nd April; Portsmouth, 7th April.
1st destroyer flotilla	Ferrol, 12th to 19th January; Cadiz, 21st to 30th January; Gibraltar, 31st January to 25th February; Malaga, 25th to 29th February; Cartagena, 1st to 6th March; Palma, 7th to 9th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th to 25th March; Huelva, 26th to 31st March; Arosa Bay, 1st to 4th April; Home Ports, 7th April.
2nd destroyer flotilla	Gibraltar, 15th to 31st January; Cartagena, 1st to 6th February; Barcelona, 7th to 14th February; Palma, 15th to 20th February; Gibraltar, 22nd February to 8th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th to 29th March; Arosa Bay, 31st March to 4th April; Home Ports, 7th April.
5th destroyer flotilla	Ferrol, 12th to 19th January; Huelva, 21st to 30th January; Gibraltar, 31st January to 25th February; Almeira, 26th to 29th February; Valencia, 1st to 6th March; Palma, 7th to 9th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th March to 2nd April; Home Ports, 7th April.
6th destroyer flotilla	" Campbell " and 12th division: Portland for exercises till 11th division ready. Left Portland mid-February; Gibraltar, end of February to 8th March; Pollensa Bay, 10th to 15th March; Gibraltar, 17th March to 2nd April; Home Ports, 7th April.

On leaving Portland, there occurred the disaster to L 24 and also collision between K 2 and K 12.

At Pollensa bay, Majorca, the Atlantic and Mediterranean fleets met, and combined exercises were carried out from March 11th to 15th.

The ninth flotilla, which did not accompany the fleet, arrived at Portland on 14th February from Rosyth, and remained there until the end of the quarter.

When the combined exercises between the two fleets were concluded, the "Ajax" and the "Centurion" of the fourth battle squadron, Mediterranean fleet, returned to England to join the Reserve fleet. The battleships in the Mediterranean are now the "Iron Duke" (flag), "Benbow" (flag of R.A.), "Marlborough" and "Emperor of India."

The destroyer leaders "Stuart" and "Montrose," when replaced by the new leaders "Keppel" and "Broke," relieved the "Spenser" and the "Malcolm" as leaders of the second and fifth flotillas in the Atlantic fleet.

CHINA.

After meeting the special service squadron at Singapore, Admiral Sir Arthur Leveson made a cruise through the southern part of the China station in his flagship the "Hawkins," accompanied by the sloops "Petersfield" and "Bluebell." During February and March, visits were paid to Batavia, Surabaya, and Bangkok.

EAST INDIES.

It was officially announced in the naval estimates for the year that the headquarters of the squadron had been transferred to Trincomalee from Bombay.

During the first months of the year H.M.S. "Cairo" visited some of the less frequented harbours on the station. Calls were made at Mergai and Moulmein, on the coast of Burmah, during January; and at Bassein, Temple Sound, Port Anson and Galle during February.

The "Southampton," flying the flag of Rear-Admiral Richmond, left Bombay early in January and visited Trincomalee, Port Blair and Rangoon.

SOUTH AFRICA.

The "Birmingham," the new flagship of the station, after spending Christmas at Accra, visited Victoria, Bonny, Elephant Bay and Walfisch Bay, and arrived at Simonstown in the middle of February.

WEST AFRICA.

During January and February, the "Dwarf" visited Sekondi, Accra and Lagos.

MEDITERRANEAN.

A redistribution of the ships belonging to the Atlantic and Mediterranean fleets was announced in the naval estimates. When the change is complete, the Mediterranean fleet is to be composed of: 8 battleships, 2 light cruiser squadrons, 4 destroyer flotillas, 2 depôt ships, 2 aircraft carriers, 1 fleet repair ship, 1 submarine flotilla, 1 submarine depôt ship.

Late in February, the new aircraft-carrier "Eagle" commissioned for service in the Mediterranean, where she relieved the "Pegasus."

In March, the new flotilla leaders "Keppel" and "Broke" relieved the "Stuart" and "Montrose" in the third and fourth flotillas. The new destroyers "Witch" and "Whitehall" relieved the "Woolston" and the "Wolsey," which were placed in the Mediterranean destroyer reserve. As a result of these changes the third and fourth flotillas are now composed as follows:—third flotilla, "Keppel" (leader), "Verity," "Veteran," "Wanderer," "Wild Swan," "Wishart," "Witherington," "Wivern," "Wolverine"; fourth flotilla: "Broke" (leader), "Vansittart," "Venomous," "Volunteer," "Whitshed," "Witch," "Whitehall," "Worcester," "Wren."

NEW ZEALAND.

During January the sloops "Laburnum" and "Veronica" made a cruise to various ports on the station and returned to Auckland early in February. They left Wellington again in the latter part of March for a further cruise.

NORTH AMERICA AND WEST INDIES.

On 11th January the "Calcutta," flying the flag of the Commander-in-Chief, arrived at Demerara, where she was joined by the "Curlew" and "Constance." The squadron then cruised together and visited Trinidad and Kingston, Jamaica. In February the squadron dispersed, and the ships cruised independently.

Early in January the "Capetown" proceeded to Vera Cruz, in consequence of the disturbances in Mexico.

SUBMARINE SERVICE.

In March, the "Pandora" was ordered to relieve the "Dolphin" as submarine depôt ship at Portsmouth. The "Pandora" was originally a steamship built for the Moss Line. She was subsequently purchased by the government and served as depôt ship in the first flotilla of the Atlantic fleet.

Submarine "K 26," the latest of her class, started on an experimental cruise on 2nd January. She visited Gibraltar on 7th January.

She was delayed at Malta for over a month, and left for Port Said during the last days of the quarter.

NEW CONSTRUCTION.

Early in January it was announced that the "Courageous" and "Glorious" were to be converted into aircraft-carriers at Devonport and Rosyth. The light cruiser "Dartmouth" was ordered to relieve the "Glorious" as flagship of the reserve fleet at Devonport.

The "Courageous" and "Glorious" were the last development of Lord Fisher's belief that speed and armament were the essential qualities of warship design. They were intended to be part of the fleet which forced the Baltic, and were designed for operations inside the Belts. Their armament consisted of four 15-in. guns, eighteen 4-in. guns, and twelve torpedo tubes. Their indicated horsepower was 90,000, developed in 18 small tube Yarrow boilers and Parsons' turbines; their speed was 31½ knots, equal to that of the fastest destroyer in 1916, when they were laid down. To obtain these qualities armour was reduced to a minimum; there was a 3-in. belt, and the decks around the gunhouses were strengthened; the barbette armour varied from 13-in. to 7-in.

In February the flotilla leaders "Keppel" and "Broke," the destroyers "Witch," "Whitehall" and "Shikari," and the aircraft-carriers "Eagle" and "Hermes" were put into commission. Their specifications are:—(i) "Keppel" and "Broke": displacement, 1,750; horse-power, 40,000; speed, 36 knots; length, 330 feet; beam, 32 feet; draught, 12 feet; armament, five 4·7-in.; one 3-in. and six torpedo tubes. (ii) "Witch" and "Whitehall": displacement, 1,325; horse-power, 30,000; length, 312 feet; beam, 30 feet; draught, 11 feet; armament, four 4·7-in.; and four torpedo tubes. (iii) "Shikari," displacement: 1,100 tons; horse-power, 27,000; speed, 36 knots; length, 280 feet; beam, 27 feet; draught, 11 feet; armament, three 4-in.; and four torpedo tubes. (iv) The "Eagle," originally intended to be a battleship in the Chilean navy, was taken up in 1918 for conversion into an aircraft carrier, by the British government.

She displaces 22,800 tons, and has a horse-power of 55,000; she is 600 feet long and has an armament of seven 5.5-in. and four 4-in. (anti-aircraft); her speed is 26 knots and she draws 18½ feet. (v) The "Hermes" displaces 11,000 tons, has an indicated horse-power of 40,000 and a speed of 26 knots; she is 600 feet long, 70 feet in beam, and draws 18½ feet. Her armament is seven 5.5-in. and four 4-in. (anti-aircraft).

On 21st February, Mr. Ammon announced that the government had decided to proceed with the building of five cruisers, three of which were to be constructed in the Royal Dockyards; but that the other items of the former government's programme, submarine depôt ships, minelayers, &c., were still being considered.

REPLACEMENTS.

In reply to a question in the House of Commons, Mr. Ammon stated that the estimated life of a light cruiser was fifteen years; and that between 1924 and 1929 the number of cruisers which will become due for replacement under this rule will be: 1924-5, two; 1925-6, one; 1926-7, five; 1927-8, three; 1928-9, one; 1929-30, four; 1930-1, five; 1931-2, one; 1932-3, two; 1933-4, five; 1934-5, six; 1935-6, none; 1936-7, one; 1937-8, four; 1938-9, none.

The life of a destroyer is estimated at twelve years, and the destroyer replacement table for the 1927-1940 period will be: 1927-8, one; 1928-9, three; 1929-30, twenty-two; 1930-1, twenty-nine; 1931-2, twenty-nine; 1932-3, thirty-six; 1933-4, thirty-nine; 1934-5, thirty-two; 1935-6, two; 1936-7, one; 1937-8, two; 1938-9, none; 1939-40, five.

COLONIAL NAVIES.

AUSTRALIA.

In February the ships of the Australian navy, consisting of the light cruisers "Melbourne," "Adelaide," and "Brisbane," the flotilla leader "Anzac," the destroyers "Stalwart" and "Tasmania" and the depôt ship "Platypus," left Sydney for their spring cruise to Hobart, Port Arthur, and the principal New Zealand harbours.

The flagship "Melbourne" parted from her consorts at Port Arthur, Tasmania, and sailed to Auckland, where Rear-Admiral Addison conferred with Commodore Beal, commanding the New Zealand station. She then went on to Wellington, Dunedin and Milford Sound, and rejoined the remainder of the Australian fleet at Jarvis Bay.

UNION OF SOUTH AFRICA.

The January navy list contained the first published list of the *personnel* of the South African naval force. The force is under the command of the Commander-in-chief, Africa station, and comprises 13 officers.

MISCELLANEOUS.

In January, the report of the sub-committee of the Committee of Imperial Defence upon the subject of national and Imperial defence was presented to Parliament. Excluding the introductory and concluding sections, it was in seven parts, and to it was annexed a command paper, originally issued in the autumn of last year, which dealt with the relations of the navy and the air force.

In their review of questions concerned with the cooperation of the three services, the committee recorded the altered responsibilities of the three fighting services. Before the war, invasions from the sea were dealt with by the sea and land forces; subsequently to it, the air force has been vested with the duty of defending us against air raids, in which "the army and navy must play a secondary rôle," although protection against an organised attack upon our territory still rests with the army and navy.

In the outer oceans our territory and communications are still adequately defended by the navy; but in the narrow seas the case is different. Here both territory and communications are liable to attack from the air; but the sub-committee were unable to measure the extent of the danger: "this part of the inquiry revealed wide differences of professional opinion between the naval staff and the air staff both in matters of principle and detail, on such questions as the power of a fleet to operate within effective striking range of hostile aircraft, the effectiveness of attacks on a fleet by aircraft and the power of a fleet to defend itself against such attacks." In view of this the sub-committee concluded: (i) that the subject of air attacks upon sea-communications should be further investigated; (ii) that in all belligerent operations where more than one service was concerned, one of them should be selected as the "predominant partner."

The committee considered the proposal to establish a Ministry of Defence and decided that it was impracticable. The objections were as follows:—

(a) Lord Haldane's:

"In the way of the institution of a general Minister of Defence there are obvious difficulties. If established with anything like adequate power of control, such a minister would be bound to interfere in administration, just as the First Lord of the Admiralty and the Secretary of State for War are bound to be ready to do so, by reason of their direct responsibility for it to Parliament. The Minister of Defence would, indeed, be looked to as responsible not only for efficiency, but for economy. He would, therefore, require a considerable and varied staff, whose duties would overlap and duplicate those of existing departmental staffs. What would be the relation of this new staff to the staffs under the three ministers at present responsible to Parliament, and what would be the constitutional and practical relationship of the new Minister of Defence to the three older ministers? The former would, I think, be in considerable danger of proving himself to be either too great or too little. He would be too little if the departmental staffs developed to their full inherent capacity and were working out general military policy in conference. In such a case the Prime Minister would be the only person possessed of authority sufficient to enable him to intervene effectively.

"With the cabinet behind him, he is in a position to exercise influence as no Minister of Defence could.

"If, indeed, the Minister of Defence were to make himself, on the other hand, very powerful by equipping himself with an effective administrative organisation sufficient for direct control of the three services, he might well become a rival of the Prime Minister himself. The difficulty does not exhaust itself here. The first Government that made such an appointment would probably make it with great care and with sufficient regard to necessary qualifications in the occupant of the position. But if a subsequent Government came in that were not deeply interested in defence, the temptation would be strong to give the office to an influential politician distinguished, perhaps, mainly for debating gifts."

(b) Lord Midleton's:

"It is surely beyond human power for one man to get his mind impregnated with the pros and cons of large changes in three totally distinct services within the limited time for which parliamentary chiefs hold office. The fact that there have been eleven changes in the Office of Secretary of State for War in the last eleven years has been very prejudicial to the economy and possibly to the efficiency of the army. First Lords of the Admiralty attach the greatest importance to their official tours for elucidating by contact with naval officers not employed at the Admiralty the problems submitted to them. The over-worked Minister of Defence would be quite unable to find time for such excursions."

(c) Sir William Robertson's:

"The formation of a combined Imperial General Staff, consisting of military, naval and air force officers, working under a chief (a soldier, or sailor, or airman) responsible to the government, or to a Minister of Defence, for working out plans of operations on land, on sea, and in the air, and, according to some, endowed with 'financial and strategical powers,' is even more fantastical as well as dreadfully mischievous. An important corner-stone in military organisation is that he who makes a plan ought to be responsible for its execution and stake his reputation upon it. Consequently, the chief of this proposed combined staff must draft and issue the orders of the Government to all the generals and admirals and air officers entrusted with the control of the armies, the fleets, and the air forces. The confusion that would arise in the three war departments and at the front if any such ill-considered system as this were adopted, is quite inconceivable. Further, this staff would directly interpose between the three chiefs of staff and the cabinet, and there could be no more pernicious system than that."

Considering these arguments to be overwhelming, the committee decided that a greater measure of co-ordination between the three services could best be ensured by extending and strengthening the powers of the committee of Imperial Defence. They recommended, therefore, that it should henceforth consist of:—

- A Chairman (deputy to the Prime Minister).
- The Secretary of State for War.
- The Secretary of State for Air.
- The First Lord of the Admiralty.
- The Chancellor of the Exchequer or Financial Secretary.
- The Secretary of State for Foreign Affairs.
- The Secretary of State for the Colonies.
- The Secretary of State for India.
- The Chiefs of Staff of the three fighting services.
- The Permanent Secretary to the Treasury.

In addition to these, other British or dominion ministers of the Crown will be summoned by the chairman according to the nature of the business.

The chairman is to have the power of raising questions and causing them to be examined by the committee of imperial defence, independently of the departments concerned. As a member of the sub-committee of the three chiefs of staff, he will be in a position to judge what questions should be ventilated.

THE SINGAPORE BASE.

On 18th March the Prime Minister informed Parliament that the present government did not intend to proceed further with the project of establishing a fleet base at Singapore. During the course of his speech, he promised that all the documents relating to the discussions which had taken place with the Dominions, would be published as soon as the consent of the Colonial governments had been obtained.

FOREIGN NAVIES.

FRANCE.

On 16th February, Vice-Admiral Boué de Lapeyrère died at Pau, at the age of 72. He entered the French navy in 1869, and saw active service in Tonkin and Indo-China. His promotion in the service was rapid, and, in 1909 Monsieur Briand made him his Minister of Marine. His service as a *Préfet Maritime* had given him a great knowledge of administration, and in his new appointment he showed himself a great reformer. His great work was that of preparing the last naval programme adopted by parliament before war broke out. In August, 1911, he was made Commander-in-chief in the Mediterranean; he still held the post when war was declared.

His operations during the first months of the war have been much discussed, and sometimes adversely, by French naval critics. On the other hand, nobody questions that the high standard of efficiency which the French Mediterranean squadron had attained when it entered the war was due to his energy and single-mindedness.

CHANNEL AND ATLANTIC.

During January and February Admiral Docteur continued the fleet exercises which were reported in the naval notes of the February *Journal*. The battleship "*Diderot*" (flag), with the second and sixth flotillas, and the Atlantic submarine flotilla, were engaged.

During the last week in March the "*Diderot*" and the "*Condorcet*" carried out torpedo practice in the anchorage of le Fret. On 31st March, the "*Diderot*" and a number of destroyers from the 2nd flotilla went to Quiberon for firing practices. The new destroyer "*Enseigne Gabolde*" took part in the exercises.

MEDITERRANEAN.

After considerable delays, owing to bad weather, the battleships of Admiral Dumesnil's squadron carried out target practice between 15th January and 18th. The firing of the "*Provence*," "*Lorraine*" and "*Bretagne*," at extreme range, is said to have been very good.

On 22nd January Admiral Dumesnil assembled his fleet in the Gulf of San Juan, and began his programme of fleet manoeuvres. Marseilles was attacked from the sea, and an attempt made at landing, during the 26th.

NEW CONSTRUCTION.

A report upon the bill for authorising the second part of the French naval programme has been presented to the Chamber of Deputies by Monsieur Paul Denise, the chairman of the naval commission. Considerable alterations in the original project have been recommended, and the commission urges that the programme shall be completed by 1928, instead of 1930 as at first proposed. If

the findings of the commission are accepted, the new ships will be taken in hand in the following order:—

Year.	Cruisers.	Cruiser Submarines.	Leaders.	Submarines.	Destroyers.	Submarine Minelayers.	Miscellaneous.
1924 - - - -	2	—	6	—	2	—	—
1925 - - - -	—	5	6	1	7	2	1 minelayer; 2 oilers.
1926 - - - -	2	5	6	1	7	2	—
1927 - - - -	—	5	6	—	7	2	1 minelayer.
1928 - - - -	2	—	—	—	7	1	2 oilers.
Total - - -	6	15	24	2	30	7	

Late in March the new cruiser, "Lamotte Picquet," was floated in the basin of the Fosse aux Mâts Lorient, and towed to the wharf where she will be completed. The "Lamotte Picquet" is of the "Dugai Trouin" class, and displaces 8,000 tons. She will be fitted with Parsons turbines, which will develop a horse-power of 100,000 and a speed of 34 knots. She will have eight Guyot boilers, fitted for oil consumption, and built by the Indret factories, near Nantes. Her length is 612 feet; her beam 56 and her draught 17. She will mount eight 6.1-in. and four 2.9-in. anti-aircraft guns; and will have twelve 21.7-in. torpedo tubes in triple mountings.

The destroyer "Enseigne Gabolde," which was put into commission in the Atlantic fleet early in March, displaces 890 tons, and has an indicated horse-power of 20,000. Her mean speed on trial was 33 knots, and she is armed with three 3.9-in. guns and four 21.6-in. torpedo tubes.

MISCELLANEOUS.

A bill for regularising French naval recruiting has been laid before the French chamber. The period of obligatory service is to be reduced from five to three years; and naval ratings are to be available for service in the reserve for 23 years in all. Under the existing system they are liable for service up to the age of 50. After 18 months' service recruits obtained from the *inscription maritime* are to be paid at the same rate as those who have engaged voluntarily. The law provides for a thorough reorganisation of the naval reserves. The merchant service is not to be depleted of men whom it needs; but persons having an employment in civil life which specially fits them for naval service are to be inscribed as "assimilés spéciaux," and to be given a rate corresponding to their special duties.

Officers of the merchant service employed exclusively in transports are to be given a special rank, which is, however, to be one which keeps them distinct from the naval reserve officers. An article provides for a corps of auxiliary staff officers whose duties are to be cyphering and decyphering, interpreting, &c.

A report on naval economies has been presented to the French chamber. Its principal recommendations are that the naval hospitals at Saint Mandrier (Toulon) and Port Louis (Lorient) shall be closed; that the five schools of elementary instruction shall be absorbed into the school of naval construction at Brest and the artillery school at Toulon; and that the construction of artillery

and munitions for the army and navy shall be centralised into a single service. The report further recommends that the French coasts shall be divided into four zones, each under the control of a naval commander in chief, who is to replace the old *préfets maritimes*.

A report on the projected law for the defence of French maritime frontiers has been laid before the Chamber of Deputies by Monsieur Boussenot. It is in two parts: the first deals with the historical aspect of the problem, and the second with the measure now before the French Parliament. The duty of providing for the defence of the French coasts was first entrusted to the department of war in 1759, after it had been within the province of the local admiral for two centuries previously. This centralisation did not result in a higher standard of efficiency; and from the date on which coastal defence became an attribute of the army command, two conflicting points of view have hampered a proper solution of the problem. The army maintains that the country has nothing to fear from landings, as the invaders will eventually be driven into the sea; the naval high command maintains that raids in force, if well conducted, may paralyse naval arsenals, and even cause serious naval losses; and that the duty of repelling landings belongs in the first place to the naval forces, since they alone have the power of preventing them. The opposition between these two standpoints still exists, at all events latently.

Monsieur Boussenot inclines towards the naval view. After enumerating the various forms of attack to which a coast can be subjected, the report states positively that the protection against them consists in fixed and mobile naval defences.

Monsieur Boussenot devotes a great deal of space to the naval defence of the French colonies. On this point he has decided that the colonial administrations, and not the naval command, must be the responsible authority. Any other arrangement would completely upset the existing organisation. On the other hand the system of defence adopted must be the same as that which prevails at home; and Monsieur Boussenot recommends that a naval officer should be appointed to the Colonial Office to ensure that the methods of defence adopted at home and abroad are identical.

At a recent exhibition at the Grand Palais des Champs Elysées, Captain Bion, the head of the research department of the French Admiralty, made a show of the more remarkable inventions of modern French naval officers. They included (i) several apparatus for taking a continuous register of the depth of water by means of sound, due to Monsieur Marti, ingénieur hydrographe, and to Messieurs Chilowski and Langevin, and (ii) an automatic register of a vessel's course and distance run, due to Lieutenant de vaisseau Baule; (iii) a number of submarine detecting apparatus, and (iv) the Favé tide-meter, which is by far the best automatic tide-gauge that has as yet been invented.

GREECE.

In January four Greek destroyers, the "Aetos," "Jerax," "Leon" and "Panther," arrived at White's yard, Cowes, for alterations to their machinery and boilers. The refit included modernising their armament of four 4-in. guns and four 18-in. torpedo tubes.

ITALY.

The Italian torpedo factory—the *Silurificio Italiano* of Naples—have recently been experimenting with a new type of torpedo which they claim to have a minimum speed of 48 knots up to 3,000 metres, and of 27 knots up to 15,000 metres. Its depth can be regulated up to 12 metres. The diameter of the new weapon is

533 millimetres. Its speed can be regulated; and the maximum rate at which it is capable of travelling through the water is said to be 53 knots. The invention extends to the permanent fittings of the torpedo, which is "set" for distance, speed and depth whilst actually in the tube and can therefore be adjusted to the data available at the moment of firing. Its inventor is Francesco Schmid, one of the technical directors of the *Silurificio Italiano*.

The Italian destroyer "*Medici*" arrived at Toulon on the 31st January bringing with her souvenirs of the French submarine "*Curie*," which was lost in the war in a gallant attack upon Pola. An official reception was given to the visitors by Admirals Lauxade, the *préfet maritime*, and Dumesnil, the commander-in-chief of the Mediterranean squadron.

A supreme council of defence has been instituted by a recent ministerial decree. It is to consist of the president of the council, the ministers of foreign affairs, war, navy, finance, colonies, national economy, and the Commissioner for aeronautics. The president of the Army Council, the president of the committee of admirals, the president of the aeronautical council, and the president of national mobilisation, are to take part in all deliberations as advisers to the supreme council. The chiefs of the army and navy staffs and the air commander in chief may also be called as advisers. The departments under the consultative members are ranked as "consultative branches" of the supreme council and are to study and examine all questions referred to them. The council is to have a secretariat of its own, whose duty is to consist in collecting all questions to be laid before the council, and communicating all decisions taken to the ministers concerned.

NEW CONSTRUCTION.

The programme of new construction for the period 1923-1928 is as follows :—

				Light Cruisers.	Destroyers.	Submarines.
1923-24	...	...	...	2	4	4
1924-25	...	...	...	2	4	4
1925-26	...	...	...	nil	4	4
1926-27	...	...	...	nil	4	4
1927-28	...	...	...	1	4	4

The period of naval service is to be raised from 24 to 28 months, and the *personnel* is to be increased to 45,000 by the 30th June, 1924.

THE FIUME SETTLEMENT.

As a result of a diplomatic conference the Italian and Yugoslav governments settled the dispute about Fiume. By the terms of the convention, Fiume is to be annexed to Italy, and Porto Barros to Yugoslavia. The frontier line north of Fiume is to be modified so as to bring a greater number of Slav villages under Yugoslav jurisdiction; the aqueduct and the electric power station, both of which were given to Yugoslavia by the Rapallo treaty, are to be included in the Italian zone. A basin, including three docks, is to be leased to Yugoslavia for 50 years in return for a nominal yearly payment. The railway station is to have the same status as other international stations on the Italian frontier, and its connection to Porto Barros is settled by a special annexe.

This agreement was supplementary to a general treaty in which the two countries bound themselves—

- (1) to collaborate with and aid each other in maintaining the order of things established by the Treaties of the Trianon, St. Germain, and Neuilly, and to respect obligations arising out of them;
- (2) to preserve neutrality; in case the other is the object of unprovoked attack

- by a third party, each will offer political and diplomatic support if the other is menaced by such attack,
- (3) in case of international complications threatening their common interests, to arrive at an understanding regarding the measures necessary for common defence.

JAPAN.

During the present quarter the Japanese naval estimates have been laid before the Diet. They amount, approximately, to £24,000,000.

Three 700-ton minesweepers, about which no details are known, have recently been completed, together with submarine number 59. The light cruiser "Sendai" was launched on 30th November. The details of these vessels are as follows:—

Light cruiser "Sendai."—Displacement, 5,600 tons; horse-power, 90,000; speed, 33 knots; length, 500 ft.; beam, 47 feet; draught, 16 feet. Armament, seven 5.5-in.; two 12-pounder anti-aircraft guns; four double 21-in. torpedo tubes.

Submarine number 59.—Displacement, 900 tons (surface), 1,080 tons (submerged); speed, 17 knots (surface), 10½ knots (submerged); length, 232 feet; armament, one 12 pounder and four 21-in. torpedo tubes.

Submarine number 68, of a smaller class than number 59, has also been completed. No details are at present available.

The Japanese navy has suffered the loss of submarine number 43, which was sunk in a collision with the light cruiser "Tatsuta" off Sasebo. She was one of a class of twelve vessels with a tonnage of 740 and a surface speed of 17 knots.

JUGOSLAVIA.

Although Jugoslavia has not settled upon any naval programme, the corps of naval officers has been fixed and is to consist of: sub-lieutenants (divided into two classes), 46; lieutenants, 36; lieutenant commanders, 18; commanders, 6; captains, 4; rear-admirals, 3. The effectives of the naval *personnel* number 3,000 in all.

At the present moment the Yugoslav government is endeavouring to make all the ships on her navy list fit for sea; and to set up stores of naval war materials. It is reported that the Yugoslav parliament will shortly be asked to pass a bill for creating a naval establishment of 24 minelayers, 25 destroyers of medium displacement, 38 submarines, and 2 ocean-going cruisers. In addition, parliament will be called upon to sanction the setting up of a number of coastal W/T stations; and the creation of a considerable force of aeroplanes for naval service.

There is now a naval training school at Gravosa, a school for petty officers at Sebenico, and a naval gunnery school and mechanics' training institute at Cattaro.

MEXICO.

In January a fresh revolutionary movement broke out in Mexico. The anti-government party, which seems to have been strong in some of the coastal ports, mined the approaches to Salina Cruz, on the Pacific coast, and Vera Cruz, Frontera, and Puerto Mexico on the gulf coast. As a result of this the United States government (*q.v.*) sent considerable naval forces to Vera Cruz to look after American interests.

NORWAY.

The naval defence commission has recently published its report to parliament. The most important proposals are: the building of a certain number of coast-defence vessels of 1,500 tons, carrying six 6-in. guns; a revised system of preliminary training for officers, whereby the average age of a sub-lieutenant

would be raised from 21 to 25; and the division of the coast into five district commands.

Submarine number V.3 was recently launched at Kaldnes yard, Tosberg. She displaces 420 tons on the surface and 500 tons submerged; her indicated horse-power is 900, her surface speed is $14\frac{1}{2}$ knots and her speed below water 10. She is 167 feet long, and is armed with two bow and two stern tubes.

PORTUGAL.

The naval estimates for 1923-1924 showed a considerable increase on those of previous years. The principal items on the programme were the building of 12 gunboats for fishery protection, and the transfer of the naval arsenal from the southern side of the Tagus to Alfeite.

SOUTH AMERICAN STATES.

Information has recently been received about the Conference for the limitation of armaments in the South American States which took place in the spring of the year. The Chilean government proposed that for five years, each South American republic should keep its total battle fleet tonnage within a certain specified figure somewhere between 60,000 and 80,000 tons. Auxiliary craft were not to exceed a total of 85,000 tons, and submarines were to be limited to 15,000 tons.

These proposals provoked a great deal of discussion. Brazil objected that if the battleship figure were fixed at 60,000, she would be unable to buy or build a new ship for the whole period; the Argentine objected to the higher figure of 80,000 tons, because, if accepted, it would have left Brazil free to increase her navy by the very latest class of battleship. The conference led to very little practical result.

SPAIN.

The visit of the King of Spain to Italy during the last quarter has aroused a good deal of interest and discussion in Spanish naval building. At the present moment the following ships are in hand; practically all the work is being done by the Sociedad Española de Construcción Naval; which employs 1,200 permanent hands and officials, and about 10,000 casual artisans.

Light cruisers.—Two, of 7,850 tons and 33 knots, armed with eight 6-in. guns and twelve 21-in. torpedo tubes.

Flotilla leaders.—Three of 1,650 tons and 36 knots, armed with five 4.7-in. guns and six 21-in. torpedo tubes in triple mountings.

Destroyers.—Three of 1,300 tons and 34 knots, armed with three 4-in. guns and two twin 21-in. torpedo tubes.

Gunboats.—Three of 1,335 tons and 15 knots, armed with four 4-in. guns.

Submarines.—Two of the "B" type, 600 tons on the surface and 740 submerged; and six of the "C" class, 900 tons on the surface and 1,290 submerged.

UNITED STATES OF AMERICA.

On 7th January, the newly completed battleship, the "Colorado," arrived at Portsmouth. After a week's stay she visited Cherbourg, Villefranche, Naples and Gibraltar, and sailed for the United States on 6th February.

The United States navy suffered the loss of the cruiser "Tacoma," which grounded on Banquillas reef, near Vera Cruz, on 16th January. The weather was calm and fine when the cruiser went ashore; but it got very bad before she could be floated off; her back was completely broken. The "Tacoma" was

a cruiser of 3,200 tons, armed with eight 5-in. guns, and capable of doing 18 knots. She was laid down in 1900 and completed in 1904.

NAVAL MANŒUVRES.

The manœuvres of the United States fleet were carried out between January and April. The strategical exercise included the seizure of a base in the Culebra area, in which the whole of the Marine Corps took part. The programme was as follows: On 4th January, the Atlantic battle fleet, under Admiral S. S. Robinson, and the scouting fleet under Vice-Admiral MacCully left for the canal zone and arrived there on the 14th. They were joined here by the Pacific fleet and for the next 10 days there were exercises in connection with the defence of the canal. On 23rd January, the combined fleet, under the command of Admiral Coontz, sailed for Port Vieques, Porto Rico, and arrived on 29th January. February was spent in tactical exercises, and in executing the strategical programme. During March the whole fleet visited the ports of the United States, and anchored off New York.

During these manœuvres four battleships, the "Wyoming," "Arkansas," "Utah" and "Florida," developed grave engine-room defects and were obliged to abandon their exercises.

The Secretary of the Navy, Mr. Denby, described the extent and purpose of these manœuvres in an official announcement to the press, which ran as follows:—

"There are several ways in which the Canal might be attacked. Hostile agents might injure some vital part of the Canal. Therefore, there must be military guards at all such points. An enemy might use its entire naval strength in a great effort to secure its possession. In that event the decisive battle for control of the seas would be waged there. Or, again, the enemy might simply endeavour to close the Canal in order to prevent the combining of our fleets. This engagement would be preparatory to the decisive naval engagements between each of our divided naval forces and the enemy's combined strength.

"The manœuvres of this year are a test against the kind of raid that may be anticipated. The situation is based upon the assumption that strained relations exist between the United States and imaginary enemies, equal to us in resources, man-power and naval strength. We further assume to have resisted the public demand for consolidation of our Pacific and Atlantic Fleets for fear such an act would precipitate hostilities, but about the first of this month the appearance of an imaginary hostile naval detachment in the middle of the North Atlantic Ocean caused our government to order its Pacific force to sail for the Atlantic. The imaginary hostile powers are supposed to have shortly thereafter moved their main combined navies into the Atlantic and ordered a general mobilisation of their military forces. We followed with similar orders. The naval force at Panama, consisting of three gunboats, is assumed to have been sent on a scouting expedition into the Caribbean and to have reported two days ago that it had sighted a greatly superior hostile force, presumably the first imaginary detachment which had appeared in the Atlantic. Our Atlantic fleet is being held at Narragansett Bay in anticipation of an attack by the imaginary main hostile fleet, which is superior in strength. Our Pacific fleet will reach the Canal on the 16th.

"Our Atlantic fleet will represent the hostile raiding detachment, designated as Black, while the Pacific fleet and the Panama Canal troops will represent the United States, designated as Blue. The Regular Army troops in the Canal zone approximate a strength of nine thousand officers and men.

"There are several ways in which the Black detachment, inferior in number,

may attempt, with hope of success, to prevent the Pacific fleet from reaching the Caribbean. One would be to attack the fleet piecemeal as it exits from the Canal; another to block the Atlantic entrance; another to destroy with their guns, airplanes or a landing force, some vital part of the Canal. The purposes of the raid will be fulfilled if our Pacific fleet is delayed for a week. That would give the main Black fleet a long enough time in which to meet our Atlantic force and sail to join its raiding detachment. Our Pacific fleet would then in turn be outnumbered, and have the alternative of risking an encounter or retreating to the Pacific. In either event control of the Atlantic would, theoretically, be possessed by Black. Operations could then be undertaken against our commerce and our land defences."

The attack on the canal defences began on 16th January. The "black" (enemy) fleet was composed of 5 battleships, 31 destroyers, 1 aircraft-carrier, 1 aircraft tender, 9 submarines, a number of auxiliaries; and a landing force of 2,500 marines. The "blue" fleet consisted of 9 battleships, 30 destroyers, 2 aircraft tenders, 11 submarines, 5 minesweepers, 22 auxiliaries, and a landing force of 9,000 officers and men.

As has been said, the government was supposed to have kept the "blue" or United States fleet in the Pacific during the period of diplomatic tension, in order to avoid provocative military preparations. When war began, the "blue" fleet was just entering the Panama canal, whilst the "black" forces had already reached the northern defences. The "blue" squadron in the Atlantic had been driven into the harbours of South Georgia, where it was being contained by other "black" forces.

At 8 a.m. on 16th January "black" forces approached the canal from the northward and opened fire on the Chagres river batteries.

Whilst engaging the shore defences, certain "black" forces, under cover of a smoke screen, landed a small raiding party in disguise near Chiriqui lagoon. This party succeeded in proceeding overland, but were unsuccessful in destroying the Gatun locks.

During the dark hours the "black" forces laid mines off the entrance, and a landing force of 1,000 marines, which had embarked in the battleships' boats at a point 17 miles away, succeeded in effecting a landing near Portobello, and in capturing fort Randolph and the submarine base and naval air station at Coco Solo.

In actual wartime a similar landing would have been made at the mouth of the Chagres river; but it was decided that the risk of malaria was too great to justify the operation in a fleet exercise.

After the capture of fort Randolph, the "black" forces closed in.

During the afternoon the "blue" forces began to arrive at the Atlantic side of the canal, and by 9 p.m. 56 vessels had passed through. The damage done to the Gatun locks by bombardment was not judged to have held up the "blue" fleet. During the night the "black" forces retired, and the "blue" fleet auxiliaries at once began to sweep a channel through the "black" minefields.

On the following day, the "black" fleet again approached the canal and attacked the locks with artillery and aircraft to prevent the passage of the remaining "blue" forces. In this they were adjudged unsuccessful and during the 17th the "blue" forces left harbour and compelled the attacking squadrons to retire.

In an official report, issued to the press, the umpires stated that the exercises had proved the canal defences to be too weak to resist a combined attack from the sea and air successfully. The umpires recommended that the existing weakness of the defences ought to be remedied by stationing more submarines and aircraft in the canal; by strengthening the anti-aircraft defences, and, above all, by

building roads between the Atlantic and the Pacific in order to make the defending forces more mobile.

The exercise and the lessons drawn from it have been much criticised in expert circles. The official report stated, in the first place, that the object of the manoeuvres had been fulfilled, and, in the second, that the weakness of the canal defences was "discovered." These two sentences have been taken to mean that the lessons to be drawn from the manoeuvres were determined beforehand. The inference is strengthened by certain other passages in the report, which are almost a repetition of the recommendations made by Mr. Denby in his annual report to congress.

The landing at Culebra island, to the east of Porto Rico, appears to have been the principal item in the second part of the programme. It was carried out by the scouting fleet, accompanied by the aircraft-carrier "Langley" and the transport "Henderson." The opposing naval forces have not been specified. The troops charged with the defence of Culebra seem to have had a considerable air force attached to them; and the attacking forces were located off the Danish island of Ste. Croix during their approach. A few hours later an advanced force was put ashore on Viequez island, and the scouting fleet retired to the open sea immediately afterwards. The defending naval forces, which seem to have been extremely weak, were bombarded at their anchorage in Target bay as the scouting fleet withdrew.

The following afternoon seems to have been spent in a diversionary attack upon the military positions at Culebra by a detachment of battleships, assisted by the "Langley" and her planes. No landing was attempted, and towards dusk the force retired. At midnight, however, the ships which had carried out the attack during the afternoon returned, escorting the transport "Henderson," and the landing force was successfully put ashore on Culebra beach.

The practices in the canal zone and at Culebra were undoubtedly based on the assumption of a state of hostilities between Great Britain and America. In the first case, the British fleet was attacking the canal; in the second, the American forces were seizing some British possession in the West Indies. An interesting point about these manoeuvres is that a long period of diplomatic tension was apparently assumed in each case. The defending forces at Culebra were more evidently powerful than any we should have in the West Indian islands, unless the diplomatic position had given us good warning, and so allowed us to send out strong garrisons.

DISPOSITION OF THE FLEET.

It is announced that all the new light cruisers, when completed, will be attached to the scouting force of the Atlantic fleet, which will then comprise four battleships, nine light cruisers, and thirty-six destroyers.

PERSONNEL.

According to a recent report the number of naval officers on the active list is 955 below the establishment of 5,500. The most serious deficiency is in the corps of medical officers, which is about 440 below complement. The constructors are 52 officers short, and there are 66 serving chaplains instead of 151.

MISCELLANEOUS.

The report of Mr. Denby, the secretary to the navy, has been placed before congress. It deals, mainly, with the administrative measures of the year; though sections are devoted to the fleet's activities. Reviewing the 1923 manoeuvres, the report states that they brought out the following points:—

- (a) that there was a great need of certain types of vessels, which the fleet now lack—light cruisers, destroyer leaders, aeroplane-carriers, and fleet submarines—to accompany the fleet.

- (b) that all auxiliaries which may have to accompany the fleet must have a cruising speed of at least 12 knots.
- (c) that the fleet needed light observation planes on all battleships; and that a higher fuel allowance was necessary to enable the fleet to do more combined cruising.

The new building programme, upon which the report touches, emphasises these conclusions: great stress is laid upon America's need of light cruisers; and attention is drawn to "the disparity in cruiser strength between the cruiser strength of Great Britain and the United States"; the report, therefore, recommends "the authorisation and appropriation of funds sufficient to commence the construction of eight 10,000 ton light cruisers."

At the present moment 41 submarines are being built, 23 of which are over 1,000 tons, and capable of long distance cruising; but "if foreign programmes are completed, the United States would have to build 50,000 tons of submarines to attain the treaty ratios." As the United States navy has no cruiser and no mine-laying submarines, the report recommends that three submarines of the cruiser type shall be taken in hand.

The report of the special board on shore establishments is added as an appendix to that of the secretary. The board was appointed on 27th September, 1922, and given the duty of recommending "the bases, yards and stations it considers necessary to the efficiency of the fleet." This annexed report first reviews the purposes for which naval bases are established, and states that they cannot be separated from the country's general policy—"the base or bases from which the fleet operates depend upon naval strategy and policy, which must be determined beforehand, in order that untimely changes may not be demanded when the nation is committed to a definite plan." In addition to these strategical desiderata, bases should be set up at good harbours, easily capable of being defended, with a thickly settled industrial or commercial region near by, to provide the necessary railway facilities. On the other hand bases may have to be established in regions where such a background is wholly lacking, for strategical reasons. Also, as strategy and policy alter with the periodical changes in international situations, the report finds that "several naval stations, built from time to time during the course of our naval history, are not now ideally located, nor developed to meet present requirements."

Allowance must also be made for the difference between the volume of work in naval bases in peace and war. Some stations which will be comparatively inactive in peace, must, none the less, be maintained in such a condition that they may be expanded rapidly to meet war requirements.

The recommendations of the board are that San Francisco Bay and Puget Sound on the Pacific coast; and the New York-Narragansett Bay region, and Chesapeake Bay on the Atlantic coast be developed into "bases capable of serving the entire fleet in all respects." Advanced fleet bases are to be set up in the canal zone and at the Hawaiian Islands; whilst secondary bases for destroyers, submarines and aircraft with "limited facilities for their repair," are to be set up at San Diego, Alaska, the eastern West Indies, the Boston-Portsmouth region, the Key West region, and Charleston.

On 5th February the committee on naval affairs met to consider the report. The discussion was focussed upon the proposal to establish a naval base at Alameda, San Francisco bay. Admiral Eberle defended the recommendations in the report. He contended that the navy yard at Mare island was not in itself sufficient, owing to the shoal water in its approaches. From Panama to Puget Sound there was only one dock capable of taking capital ships, and it was in private hands. Unless Alameda were developed on the lines of the report, large

ships would have to be dealt with in Puget Sound. On 20th March the committee on naval affairs finally decided that the navy department's proposal to create a fleet base at Alameda should be quashed.

ESTIMATES.

The committee on appropriations presented the naval budget to the house of representatives on 9th February. The total naval appropriation recommended by the committee is \$294,442,867, a decrease of nearly four million dollars in the last year's voted expenditure. The chief points of interest are that the bill, as now presented to the house, allows for no construction other than what was provided for by the 1916 programme. Mr. Denby's plea for more cruisers is apparently ignored. On the other hand, the bill does something to remedy the existing shortage of officers, by allowing for an increase of 463 officers. The corps of officers is to be: 4,966 line and 1,966 staff, officers. The bill was, in the main, approved.

RESIGNATION OF THE SECRETARY OF THE NAVY.

During the last quarter a congressional inquiry revealed grave irregularities in the manner in which the leases to the naval oil reserve lands in Hawaii had been granted. Mr. Denby, the secretary to the navy, resigned his post in February.

On 14th March the president notified the senate that he had nominated judge Curtis Dwight Wilbur to be secretary of the navy in succession to Mr. Denby. The new secretary was born in 1867 and entered the naval academy in 1884. He abandoned his naval career four years afterwards, and studied law. He was subsequently admitted to the bar, and practised as a barrister in the superior court of California. In 1918 he was appointed associate judge to the supreme court of California, and four years later became chief justice of the state.

LIMITATION OF ARMAMENTS.

On 14th February a conference of minor naval powers held its opening session at Rome to discuss the limitation of naval armaments. The governments of Russia, Sweden, Norway, Denmark, Holland, Spain, Greece, Argentine, Brazil, Chile and China were represented.

The Russian delegate, Monsieur E. Behrens, stated unofficially to the press that his government could not agree to limiting its naval armaments to a minimum figure, without previously coming to a definite agreement with Rumania and Turkey with regard to freedom of navigation in the Black sea. The conference was unable to settle upon any plan of disarmament which would serve even as a basis of further discussion, and dispersed after sitting for a few days.

EXTRACTS FROM THE FOREIGN NAVAL PRESS.

AMERICA.

The American service papers have commented very adversely upon the naval appropriations bill, as presented to the house of representatives by the committee on appropriations. *The Army and Navy Journal* remarks that the country has agreed to weaken its military power with respect to its battle fleet and its position in the Pacific. "In the first case, actually possessing a fleet the strongest in the world, we agreed to reduce our naval strength to that of Great Britain, while decreasing our fleet's relative strength with respect to that of Japan. In the Pacific, we abandoned a strong advanced position, which would have enabled us,

in case of war, to keep the fighting on the Asiatic side, for a strictly defensive one, which, should war come, means combat on our side. . . . At the present time, it is an undisputed fact that in man power, gun power, modern devices and equipment of all kinds, and in the proportion between its component parts, our fleet is considerably below that of Great Britain, instead of being equal in strength; and is almost of the same strength as that of Japan, instead of being stronger in the proportion 5 : 3."

An interesting appreciation of the recent bombing experiments against the "New Jersey" and the "Virginia," by lieutenant commander H. B. Grow of the United States navy, was published in the Proceedings of the United States Naval Institute for December. After enumerating the hits obtained by each flight, lieutenant-commander Grow describes the tactics employed: "In every attack the bombing planes flew in a loose ragged column, approximately half a mile apart. This method of attack, of course, could not possibly be employed against any objective defended by fighting planes. Neither can an attacking force circle an objective for three quarters of an hour or an hour, choosing the wind and most favourable conditions before dropping bombs, even though local control of the air has been obtained." None the less, the writer thinks, that, had the attack been made in regular battle formations, the number of hits would have been equally high. It was of great importance that the targets were stationary; for, even though aeroplanes are fitted with sights which adjust the aiming apparatus for the enemy's course and speed, it will be very difficult to hit an enemy that zig-zags, except by salvo bombing. After describing the damage done and showing that a hit from a 1,000-pound bomb is extremely serious, the writer concludes:

"(a) that the battleship to-day, unprotected, is in grave danger;

"(b) that, in spite of this danger, the battleship must remain as the first line of the navy;

"(c) that should an enemy gain control of the air at sea, victory is almost assured;

"(d) that one or two hits from a 2,000-pound bomb would put any ship in existence out of battle;

"(e) that, to preserve the safety and integrity of our ships naval aviation with the fleet must at once be expanded and developed to a maximum consistent with the terms of the treaty and the size of the fleet; and that, unless this is done, our fleet will have to go to sea under such a serious handicap that defeat would be probable;

"(f) that direct hits are probably more effective than those close aboard."

In conclusion, lieutenant-commander Grow considers that the ships can only be effectively defended against air attack by aeroplanes fitted with very heavy 1-inch machine guns.

In the March number of the same journal, lieutenant-commander Grow formulated a few general rules which, in his opinion, ought to govern the use of the naval air arm. The fleet is divided into three main sub-divisions: the battle fleet, the scouting fleet and the fleet base force; what should be the distinctive duties of the air arm attached to each of these divisions? Lieutenant-commander Grow considers that aeroplanes will work with the fleet: first, when it is concentrating at a base such as Hawaii; secondly, when it is cruising intact at sea and prior to fleet contact; thirdly, after it has gained contact but prior to an engagement; and, finally, during a major engagement. Taking these phases in turn, the writer decides that "when the fleet is concentrated at a base during war" the duty of defending it from the air belongs to the naval district command and not to the fleet itself, as it is of primary importance that "every plane and every pilot" of the fleet air arm should be ready for service with the fleet at an instant's

notice and no duty should be interposed which could possibly keep it back. When cruising at sea "the primary use of aircraft is scouting either in separate scouting force, or as adjuncts to light cruisers, submarines or other craft." Lieutenant-commander Grow is convinced that the aeroplane-carriers must be stationed with the main body, behind its protective screen. Even if the enemy is relatively weak in aircraft, he will always be able to use his aeroplanes for preliminary scouting. Any attempt to interfere with his aerial reconnaissance by stationing the air-carriers in an advanced position with the scouting forces will probably result in the fighting planes being absent from the main action. The thing to ensure is an absolute control of the air just before the main engagement begins, so that the stronger force may enjoy the advantage of aerial spotting and deny it to the enemy. "It is for this reason that I advocate retaining the large carriers with the main body, and using with the scouts and screen only such aircraft as may be on vessels in these units." Aerial scouting will probably make it certain that each fleet will be aware of the other's approach from a distance of forty miles. "As the main bodies come closer, the screens will clash, and the use of aircraft will increase. It is at this point that aircraft should make a decided effort to penetrate as near to the enemy main body as possible, and the struggle for control of the air will doubtless commence at this time." After the main action begins, fleet aircraft will be called upon to (i) destroy enemy observation planes; (ii) carry out tactical scouting; (iii) spot the fall of shot; (iv) protect the spotters; (v) carry out bombing and torpedo attacks on the enemy's fleet and carriers; (vi) carry out gas attacks on the enemy's line of approach; and (vii) attack disabled or partially disabled ships. The methods by which these various duties will be carried out cannot be discussed in detail without making use of confidential information. Lieutenant-commander Grow suggests, though very guardedly, that the solution most likely to be adopted will be that of dividing the fleet arm into an offensive and a defensive section.

In a paper read at Washington, captain Luke McNamee, the director of naval intelligence, U.S.N., discussed the influence of aerial attack upon the fighting power of surface ships. "I have been in the navy thirty-five years, and I have seen the battleship put out of business, on paper, many times. First there was the ram . . . then came the torpedo boat . . . then the zeppelin . . . and now the aeroplane bomber. . . . Every form of attack has developed a corresponding defence and the battleship still stands, the backbone of every country's naval defence."

Captain McNamee enumerates the new forms of battleship protection against air attack. Defensive protection consists in blisters or explosion chambers, outside or inside the hull; additional steel decks; anti-aircraft guns and machine guns. Offensive protection will be given by rapid fighting planes, which will shoot down the heavy bomber before he can do any damage. "History shews that new forms of warfare may add to, but never entirely abolish, older forms. . . . Aviation is an additional means of making war; it is a powerful auxiliary; but, after all, only an auxiliary. It must be supported and operate from bases. If its base is at sea, on aircraft-carriers, there must be fleets to guard the carriers. . . . The aviator never holds anything, he is essentially a raider. . . . He sails over a town and drops his bombs and sails away. . . ."

In the *Army and Navy Journal* for 9th February, captain Dudley Knox, of the United States Navy, has written an appreciation of the scope and purpose of the naval manoeuvres. He argues that the Caribbean area must "almost of necessity, be the first objective of a fleet carrying an offensive into the western Atlantic; and that there are, in it, a large number of ports which could easily be seized by a fleet and transformed into an operating base." Once so established, a fleet hostile to the United States would then be ready for the next step of operating against the

canal, on the one hand, or the main coast of the United States on the other. It is evident that captain Dudley Knox considers that the United States fleet is being practised in seizing fleet bases before its opponent can do so. "Naval strategists have always advocated the possession of a strong naval base in the Caribbean to serve as a mobilization centre for our fleet from which to counter any foreign offensive from Europe against this side of the Atlantic." If the fleet is to be ready to carry out such operations it must, obviously, have a military force at its disposal specially trained in amphibious operations; and it is for this purpose that the marine corps has been organized. "Some people have often questioned the wisdom of having the marine corps as an organization of soldiers, separate from the army and serving under the jurisdiction of the navy department. Such persons do not appreciate the highly specialized nature of landing operations and the establishment of a military force on shore, even though such landing be not opposed." After reminding his readers of the British losses at the Dardanelles, captain Dudley Knox concludes: "The island of Culebra is especially adapted for exercises of this nature. In the first place, it has few inhabitants, and it is under the jurisdiction of the navy department. In addition, it possesses excellent anchorage in its general vicinity for the fleet, and a secure inner anchorage for smaller supply vessels and base appurtenances. To these advantages are added its strategic position, which makes the general area a natural mobilization point for the fleet preliminary to the defence of both the Panama canal and the United States east coast against an offensive from Europe."

FRANCE.

Two important articles upon naval programmes appeared in France during the current quarter. The first, entitled "Reflections upon Naval Programmes," was read by monsieur Laubeuf before the Académie de Marine on his election to the presidency for the year; the second, which was on the same subject, was read by commandant Benoist d'Azy at the meeting rooms of what appears to be a debating club called "Le Journal Parlé." After quoting from a speech in which monsieur Delcassé defined a naval programme as a means of placing the "construction of fleets outside individual caprice, or the fads of passing schools of thought," and of "laying down an invariable line of conduct from which ministers will not be able to depart, and of giving it the authority of law," monsieur Laubeuf goes on to shew two things. First, if the naval authorities are simply asked to draw up a programme of naval defence, regardless of finance or politics, then, they are necessarily driven to present a project, theoretically perfect, but in all probability, impossible to put into execution; and, secondly, that "past programmes have been seriously at fault in that they have concerned themselves with ships only; floating material is, however, connected to coastal defence, which, in its turn, is connected to the army."

Monsieur Laubeuf urges that, before the Conseil Supérieur de la Marine is asked to devise a naval programme, its members shall be told what are the probable opponents; what policy the government intends to pursue; and what financial resources it is ready to devote to war ship construction. As alliances are uncertain and subject to rapid re-arrangements, no naval programme should take them into account. The writer also urges, strongly, that the periods of naval programmes shall be shortened to five or six years; to make them longer is simply to run the risk of committing the country to projects which outlive the purposes for which they were intended. In conclusion, monsieur Laubeuf draws attention to the recent bombing experiments against the "Virginia" and the "New Jersey." "An important point in these experiments is that several of the attacking aeroplanes started from Langley field, 175 miles from where the attack took place; shewing

that coastal defence and naval aviation cannot be separated from aviation over the land. I am a resolute partisan of an Air Ministry."

Monsieur Laubeuf supports his arguments with some exceedingly significant statistics. In 1890, the French government agreed to a naval programme which was to be completed in ten years. It included 36 unarmoured cruisers and 224 torpedo boats, which were rendered useless before the year was out by the appearance of the armoured cruiser "Dupuy de Lome" and the British destroyer "Daring." The 1890 programme was superseded by that of 1896, which, though more durable than its predecessor, was much modified in the matter of armoured cruisers and submarines. The 1905 programme followed: it included 34 battleships, 36 armoured cruisers, 109 destroyers, 170 torpedo boats and 130 submarines. "It was never put into execution, as the first Dreadnought, launched in the very year when the programme was settled, put it into the melting pot. The next programme, in 1911, provided for 28 battleships and 10 battle cruisers; it was to be completed in 1920; but the war interrupted it. Monsieur Laubeuf then reviews the existing naval programme, which is as follows:—

—	1st part of programme.	2nd part of programme.	Total.
Cruisers	3 of 8,000 tons	6 of 10,000 tons	9
Destroyers of 2,400 tons ...	6	15	21
Destroyers of 1,500 tons ...	12	24	36
Submarine cruisers, 2,400 to 3,000 tons	0	4	4
1st class submarines, 1,100 tons	9	30	39
2nd class submarines, 600 tons...	12	0	12

The first part is to be finished in 1925; the second in 1933. "It can be said that this programme will not be executed, and will be seriously modified whilst being carried out." France's navy has two duties: to defend the coasts, and to keep control of the western Mediterranean, in order to maintain communications with Africa. The first will be fulfilled by submarines and the mobile defence; the second by submarines and the air fleet. "No surface ship will be able to stay in the western Mediterranean if it is patrolled by submarines and aeroplanes. . . . Rapid flotillas will also be necessary for checking enemy submarines and carrying the air squadrons. Monsieur Laubeuf has no fault to find with the first part of the naval programme; but with regard to the second he suggests:—

- (1) That the programme should not be carried beyond 1928.
- (2) That the 10,000-ton cruisers be suppressed, as they are not fighting ships, and are too large and costly for scouts.
- (3) That the 2,400-ton flotilla leaders be suppressed. A flotilla must be homogeneous: if leaders of 2,400 tons are given to a flotilla of 1,500 tons, then, as soon as the weather gets bad, the smaller vessels will not be able to keep in company. Only destroyers of 1,200 tons should be built.
- (4) That the submarine cruisers should be suppressed and only submarines of between 1,100 and 600 tons built. It is no argument that Great Britain and America are building large submarine cruisers; for their navies have to operate over far greater distances. France can act in all European waters with submarines of a maximum tonnage of 1,100.

In conclusion, monsieur Laubeuf shews that he is not an advocate of submarine construction pure and simple. "I do not say that, later on, larger submarines may not be necessary, for operations against a distant enemy, or for the protection

of our furthest colonies; nor do I deny that it may be necessary to build other types: battle cruisers, battleships, or the like. I am only discussing an immediate building programme, to be completed by 1928."

Monsieur Benoist d'Azy's article attacks the government's alleged plan of building five new first-class ships. After a very arguable statement about the influence of the German submarines upon the major strategy of the war, the writer shows that, so long as France adheres to the Washington treaty, she can only have one division of first-class ships to Great Britain's three. What sense is there, then, in spending money and effort, upon a type of ship in which France will always be outnumbered by her most probable opponent? "Without ever having more than 175 submarines, Germany kept the greatest maritime coalition known to history in check: we had better get 175 submarines ourselves."

Monsieur Olivier Guiheneuc contributed an important article on the future of the French navy to the January number of *Le Yacht*. The author thinks that the future of the navy may be made precarious owing to parliamentary action, and supports the policy of building up a strong naval force by the following arguments: "Since the treaty of Versailles . . . the rulers of the British navy look upon France as the most probable opponent of the United Kingdom, and concentrate their first line forces against her, in the Mediterranean. . . . In the case of a war with Germany, or with any other power, we cannot count upon the assistance of the British navy, as its forces are concentrated against us." The writer then meets the objections raised by those who argue that, in the case of a war with Germany, the men and materials of the French navy would be wasted, as there would be no German navy to fight. His answer is that the navy would form a valuable reserve, human and material, for the defence of the frontiers. "In 1870 the navy supplied the equivalent of an army corps, and of two army corps, in 1916, until unrestricted submarine warfare compelled it to recall all Naval reservists to its own uses." Monsieur Guiheneuc then elaborates his argument by showing that naval artillery and the naval air service would be equally adaptable to the Army's needs.

[The article is interesting in that it shows how strongly French military thought is influenced by continental doctrines of war. According to our ideas the true use of a French navy would be to give the French army a mobility which it would not possess, if lack of sea power, or want of tonnage, confined it to the continent.—Ed.]

Monsieur Jean du Huguet contributed articles upon French naval policy in the January and February numbers of the *Vie Maritime*. Both are based on the assumption that Great Britain is France's most probable enemy. In the first he criticises his government for consenting to an arrangement whereby a French syndicate was granted a proportion of shares in the Turkish petroleum company. "At the very moment when British policy creates the most disturbing obstacles for us on the Rhine and in the Mediterranean, we make ourselves more dependent upon London merchants for a combustible which is alike indispensable to us in peace and war." He urges the French government to think out a "petroleum policy and strategy," which shall assure the country an adequate supply "with the maximum amount of security compatible with a state of war. . . . Nobody can deny that the most elementary strategic guarantees have been totally withheld from the French petroleum options in Mesopotamia."

In his second article monsieur du Huguet criticises his government for allowing the French naval air service to decline. The facts to which attention is drawn are as follows. In 1920 monsieur Kerguezec, the parliamentary reporter on the naval budget, stated that the budget for the naval air service lacked a directing scheme, and appeared to be unconnected to the closely related subjects of

submarine warfare and coastal defence. He therefore recommended that the credits asked for should be very much reduced, which was accordingly done. From that date the naval air service was much reduced. Monsieur du Huguet argues that it was the parliament's duty and not the navy's to supply the necessary directing scheme, which he thinks should have been a frank recognition of Great Britain's hostility to France. After reviewing this country's policy on the Tangier question, and describing her "desire or rather her insolent will, to open the breach in the flanks of French Africa, and to close up the French fleet in the Mediterranean," and after further stating that Rhineland separatism has melted away in "murders ordered from London," monsieur du Huguet urges that a naval budget be drawn up to face Great Britain's naval preparations against France. "Tomorrow we shall prove how grave are the naval and military measures directed solely against France, as exemplified in her concentration of forces upon our most vital lines of communications between Marseilles and Algiers, and Toulon and Bizerta. The British navy and the British air force are at this moment practising a general blockade of the French coasts on either side of the Mediterranean."

GERMANY.

Monsieur du Huguet's articles have a special interest if read in conjunction with an article in the February number of the *Marine Rundschau*, in which kapitan lieutenant Andriano makes a careful survey of the French navy's chances of waging a successful submarine war against Great Britain. "Much is now being said in the press at home and abroad, about the danger with which England is threatened from the French long-distance artillery, air power, and submarine service. It is therefore of some interest to examine what are the actual chances of a French submarine war against England . . ." The writer assumes a state of hostility between England and France, from which the United States and other great powers hold aloof; and for the sake of making his discussion more precise, he further assumes that Germany would take no part in the struggle. From the writings of Castex, Daveluy and Gautreau, the writer considers that it is safe to predict that France would not consider herself bound by her undertakings at Washington, and would resolutely make war upon British commerce with her submarines. In this contingency, the French submarine fleet would undoubtedly possess a good many advantages that the Germans lacked. Warned by the bad example of Germany's wavering policy on submarine warfare, the French government and the French high command would adopt it as soon as war broke out and pursue it rigorously. The French Channel ports are all well suited to submarines, so that, given the necessary numbers, the French underwater craft could keep up a really sustained attack against Great Britain's vital line of communications between Land's End and the Downs. Their chances of operating further afield would be equally good, as the St. George's channel and the south-west approaches to Ireland, where British sea-borne commerce congregates so thickly, would be very easily reached by submarines operating from Brest and Rochefort. The Atlantic would lie open to submarines operating from Bordeaux. In addition to this, the French submarines would never be compelled to get to their hunting ground through mined and guarded narrows such as the straits of Dover, or the line between Duncansby head and Skudesnæs, which they would find to be a very great advantage.

Captain Andriano does not doubt that Great Britain would succeed in enforcing a "hunger blockade" upon France, and asks how it would affect the French submarine campaign. In order to wage it successfully, France would require very large supplies of coal, iron, petroleum, aluminium, steel and copper. She

would need, in addition, plant for repairing her submarines, and for intensive manufacture of Diesel engines and machinery of every kind; as she would certainly find it necessary to increase her submarine fleet whilst the war was actually being waged. It is this which captain Andriano thinks would, in the end, hamper a French submarine campaign severely. In his opinion, she would not be able to manufacture machinery on a large enough scale, her naval arsenals would prove inadequate, and the drain upon her man-power would go far to cripple such industrial and manufacturing strength as she possesses. Granting that her supplies of coal would suffice, and that she might be able to buy up the produce of the Spanish iron mines, she could hardly supply herself with the necessary petroleum; for, even supposing that Germany's neutrality enabled France to negotiate for Roumanian and Russian oil, Great Britain would probably succeed in stopping the supplies by means of special trade agreements, based on her higher credit and purchasing power.

To complete his examination of the subject, captain Andriano makes an estimate of the general standard of efficiency which each navy would be likely to attain in war. He decides that the French would not be the equals of their opponents. War at sea is waged by a *personnel* in which the qualities and knowledge of an artisan are mixed with those of a seaman, "and it may be doubted whether France possesses a race of these seamen technicians." Nor is the writer inclined to place much confidence in French naval material. French submarines captured during the war were "primitive" in comparison to German "U" boats, and "after admitting that submarine construction in France has made great strides since the war, one can doubt whether the submarines built on German models will ever be such first-class weapons as the German 'U' boats." Captain Andriano, therefore, continues "after summing up the pros and cons of a successful submarine war by the French against England, one must conclude that a final success against British naval power is unlikely."

SPAIN.

The *Revista General de la Marina* for December devoted an editorial article to the remarks which the French press has made upon the recent visit of the King of Spain to Italy. After stating that the *Revista General de la Marina* is not a political paper, the writer goes on to say that when lord Fisher concentrated British naval forces in the North sea, he unwittingly gave new impetus to the secular French policy of securing a naval domination in the Mediterranean.

The prospect of an Italo-Spanish naval *entente* seems to have disturbed the French press, precisely because it seems an obstacle to their constant policy. After admitting that a large submarine and air base in the Balearic islands would certainly make the task of keeping open the line of communications between France and Algiers more difficult than it is, the article concludes that the French press has raised an unnecessary alarm. "With or without an Italo-Spanish alliance, France does not dominate the Mediterranean, though attempts are being made to make us believe that she does. Albion is the guardian of the Mediterranean, for she holds Gibraltar, Malta and Egypt, and can shatter French maritime traffic when she wishes. It was to Albion that France applied for vessels to protect her transports, in spite of the fact that the common enemy's fleet was shut up in harbour, and never left it except with the intention of an immediate return." [The Spanish writer seems to have misunderstood the character of Great Britain's naval assistance to France. The help given consisted in placing shipping at her disposal and in ensuring the necessary flow of supplies to her ports rather than in escorting the tonnage lent, or allocated to French use.—ED.]

The March issue of the same paper contains an editorial article comparing the

Washington conference with the recent conference at Rome. The writer argues that the conference at Washington was not convened for sentimental reasons. The two great naval powers realised that, without some kind of agreement, they would be driven to a ruinous competition. The British government was particularly anxious for an agreement. She would never have been able to stand the financial strain of a competition in armaments with America, and the convention "granted a momentary supremacy to the ancient mistress of the seas." For France the moment was not so opportune. She had been compelled to give up naval construction during the war, and when her ratio was allotted to her, no allowance was made for the five battleships which, though on the slips at the end of the war, had not been completed. The conference, which saved Great Britain the humiliation of seeing herself outstripped, deeply wounded French feeling.

The Washington conference came at an inconvenient moment for Spain. In 1913 her parliament had passed a bill authorising the replacement of three old battleships with three new ones. The war made it impossible to get the necessary material, and the programme was not completed. But "postponing is not giving up, and Spain has not abandoned the idea of becoming a naval power." For this reason, had Spanish delegates been present at Washington, they would never have agreed to any limitation which did not admit the expansion of the Spanish fleet provided for by the law of 1913.

At Rome, Spain was asked to limit her main fleet to a total tonnage of 81,000, which was the figure settled for the principal south American republics. Her delegates were unable to agree for many reasons. No first line unit can be efficient with a lower tonnage than 35,000; and as no tactical formation can consist of less than three ships, 105,000 tons is the minimum figure to which Spain can agree. It is obviously unjust to place Spain on a naval equality with the south American republics when her population is three to five, and her merchant fleet about ten times greater than theirs. Spanish subjects are situated all over the world and the government has to look after their interests. Spain owns the Canary islands, a position of great strategic importance, and a congregating point for an enormous mass of ocean traffic; and the Balearic islands, which is one of the most important strategic points in the Mediterranean. Finally, Spain has a history and a tradition; these have placed her in a position which the south American countries have not yet reached.

MILITARY NOTES.

THE ARMY COUNCIL.

The following is the present constitution of the Army Council :—

Mr. Stephen Walsh, M.P., president.
Major Clement R. Attlee, M.P., vice-president.
General the earl of Cavan.
Lieutenant-general sir R. Dundas Whigham.
Lieutenant-general sir Walter Campbell.
Lieutenant-general sir J. F. Noel Birch.
Mr. John James Lawson.
Sir H. J. Creedy.
Sir Charles Harris.

APPOINTMENTS.

The following appointments have been made :—

Major-general W. F. Lindsay, K.C.B., D.S.O., retired pay, to be colonel commandant of the royal artillery, *vice* major-general J. B. Richardson, retired pay, deceased.

Major-general sir David Bruce, K.C.B., F.R.S., M.B., F.R.C.P., retired pay, late R.A.M.C., to be colonel commandant of the royal army medical corps, *vice* major-general sir Owen E. P. Lloyd, V.C., K.C.B., retired pay, late R.A.M.C.

Lieutenant-general sir G. M. W. Macdonogh, K.C.B., K.C.M.G., late royal engineers, to be colonel commandant, royal engineers, *vice* major-general D. A. Scott, C.B., C.V.O., D.S.O., T.D., retired pay, deceased.

Major-general T. E. Scott, C.B., C.I.E., D.S.O., Indian army, to be colonel of the royal Irish fusiliers, *vice* major-general T. R. Stevenson, C.B., retired pay, deceased.

General sir Walter Congreve, V.C., K.C.B., M.V.O., colonel commandant, the rifle brigade (Prince Consort's own) to be aide-de-camp general to the King, in succession to general the lord Horne, G.C.B., K.C.M.G., colonel commandant, royal artillery.

Major-general H. F. Thuillier, C.B., C.M.G., to be director of fortifications and works, War Office, *vice* major-general sir W. A. Liddell, K.C.M.G., C.B.

Major-general sir Webb Gillman, K.C.M.G., C.B., D.S.O., to be inspector of artillery, War Office.

Major-general J. R. E. Charles, C.B., C.M.G., D.S.O., to be commandant of the Royal Military Academy, *vice* major-general sir W. Gillman.

TRAINING.

Staff exercise.—A War Office staff exercise was held at Bournemouth from the 10th to the 13th March, and was attended by officers from the War Office and from commands, staffs and schools at home and on the Rhine.

The main object of the exercise was to study the rapid issue of orders and instructions under conditions of mobile warfare.

Further points dealt with were the organisation and timing of a tactical counter-attack on a large scale, and the exploitation by tanks of a success.

Divisional training.—During the summer divisional training will be carried out in the New Forest area as under :—

1st division	...	...	...	12th August to 6th September.
2nd division and 1st cavalry brigade				8th September to 19th September.
3rd division and 2nd cavalry brigade				15th August to 19th September.

During this training attention will be directed to the following points :—

- (a) The use of the new fast tank in co-operation with infantry.
- (b) The use of tanks and armoured cars in co-operation with cavalry.
- (c) Anti-tank defence.
- (d) The handling of anti-aircraft artillery in the forward area, and the use of the Lewis and Hotchkiss guns with units for close defence against aircraft.
- (e) Control of traffic in operations.

With reference to (a) and (b) above, the area in which the training will be held enables the new fast tank to be used in a more satisfactory manner than is possible in other training areas.

Anti-gas training.—Instructions for anti-gas training were issued during March, laying down the lines to be followed in units. Those units who have instructors trained at the anti-gas school, Porton, will hold classes for officers and

non-commissioned officers who will be responsible for training the troops. The main objects of the training are to make the man thoroughly efficient in the rapid and accurate adjustment of the respirator, and to accustom him to carrying out all his normal duties whilst wearing it. The training will include the testing of the respirator in weak concentrations of lachrymatory gas in the gas chambers.

Those units who have not yet a trained instructor are to restrict their training to drill and inspection of respirators.

ROYAL ARTILLERY.

A royal warrant, dated the 8th January, 1924, provides that the royal horse artillery, royal field artillery, and royal garrison artillery shall form one corps. The corps will include all artillery units of the territorial army, and the local batteries and companies of royal artillery abroad. Enlistments will in future be for service in the royal regiment of artillery.

Since July, 1916, the royal regiment of artillery has comprised two corps—(1) the royal horse artillery and the royal field artillery, including the special reserve royal field artillery, and the royal horse and field artillery units of the territorial army; and (2) the royal garrison artillery, including the local batteries and companies of royal artillery abroad, the special reserve royal garrison artillery, and the royal garrison artillery units of the territorial army.

Further changes consequent on the formation of the royal horse artillery, the royal field artillery, and the royal garrison artillery into one corps were announced in army orders on 10th April last. As from the 1st April, 1924:—

(a) Lieutenant-colonels will be placed on one combined list in order of regimental seniority, in their present rank.

(b) All majors who obtained their first commission before 19th December, 1900, will remain on their present lists for promotion, and come on to the combined list according to the date of their promotion to lieutenant-colonel.

(c) All officers who were commissioned on or after 19th December, 1900, will take their place at once on a combined list in order of seniority by first commission.

To effect this it will be necessary to antedate certain officers in order that they may take their proper position on the combined list in accordance with the date of their first commission. Similarly it will be necessary in future to antedate certain officers on promotion in order that they may take their proper place on the combined list in accordance with the date of their first commission.

Ante-dates given for this purpose will carry regimental seniority. They will not count for army seniority, nor for pay and allowances, increase of pay, or retired pay.

Twelve former royal horse artillery batteries restored.—In January last the organisation which existed prior to the separation of the mounted and dismounted branches, in 1899, was restored, in accordance with the experience of the war which showed that there can be no arbitrary dividing line between the various artillery units. So far from ceasing to exist under this new organisation, as has been erroneously supposed, the royal horse artillery retains its distinctive status and adheres to all its former records and its standards.

There will be restored to the Army List twelve of the batteries of the royal horse artillery which disappeared two years ago as part of the general reorganisation of the army necessitated by the pressure of financial stringency; but this restoration will not involve any increase of artillery establishment. The twelve batteries will take their place as field batteries under their former royal horse artillery letter designations and will reappear in the VIII, XV and XXI brigades.

Substantive promotion.—The Army Council has decided to re-open the substantive promotion of warrant officers and non-commissioned officers in the royal

artillery, subject to existing conditions as to men holding acting rank. The regimental establishments authorised for the purpose of such promotion (except in the case of non-commissioned officers serving in India) are: for the royal horse and royal field artillery, the provisional peace establishment; and for royal garrison artillery, 90 per cent. of the provisional peace establishment.

Infantry organisation.—The single battalioned regiments, the royal Inniskilling fusiliers and the royal Irish fusiliers are to be coupled with one dépôt common to both, the men being liable to serve in either regiment; the officers will be promoted in each regiment distinctly.

Recruiting.—Recruiting during the past military year has not been entirely satisfactory, the strength of the regular army being approximately 5,500 below establishment.

Army Entrance examination.—A new form of army entrance examination is to be introduced in June, 1925, and the lower age limit for entry into the cadet colleges is being raised from 17½ to 18 years. The Sandhurst course has been shortened to 18 months, and the Woolwich course will follow suit when arrangements have been completed for giving young officers the necessary post graduate courses in technical subjects before joining for regimental duty.

BATTLE HONOURS.

The battle honours awarded to regiments and corps for the great war, and specifying those to be borne on the colours or appointments, were announced by the War Office early in March last.

Afghan campaign distinction.—The King has approved the undermentioned regiments bearing the distinction "Afghanistan, 1919," upon their standard, regimental colours, and appointments respectively in recognition of their services during the campaign known as the "3rd Afghan war":—

1st King's dragoon guards, 21st lancers (empress of India's), the Queen's royal regiment (West Surrey), the King's regiment (Liverpool), the Somerset light infantry (prince Albert's), the green Howards (Alexandra, princess of Wales's own Yorkshire regiment), the duke of Wellington's regiment (West Riding), the Border regiment, the royal Sussex regiment, the Hampshire regiment, the prince of Wales's volunteers (South Lancashire), the Queen's own royal West Kent regiment, the North Staffordshire regiment (the prince of Wales's), the Durham light infantry, 25th battalion the London regiment, and the 1st Kent cyclist battalion.

ARMY ESTIMATES.

The army estimates of effective and non-effective services for 1924-5 were issued early in March last. The net total is £45,000,000, being a reduction of £4,000,000 from that of the current year. The establishment is voted at 161,600, which includes 4,100 Indian troops employed by the Air Ministry in Iraq.

Officers' pay.—It is announced in an army order that it has now been decided, in view of the fall in the index figure for the cost of living since 1919, that a reduction of approximately 5½ per cent. shall be made in the rates of both pay and non-effective emoluments of officers.

This revision, which is to take effect from July 1st next, has been made in accordance with army order 324 of 1919, which provided that 20 per cent. of the rate of pay, half-pay, and retired pay would be subject to revision according to variations, up or down, in the cost of living, and that the first revision would be made in 1924.

This reduction will not affect other ranks, their present rates having been granted in 1919 without any condition similar to that attaching to the increase of officers' pay.

UNIFORM OFFICERS' DRESS.

It is decided, as a temporary measure and until the future policy of full dress for the army generally is settled, that officers who are not in possession of full dress uniform of their rank, may, when attending courts, state balls, or other evening entertainments at Court, wear the following alternative court dress :—

Coat—ordinary black evening dress; waistcoat—black or white evening dress; breeches—plain black evening dress material or stockinet, with three small black cloth or silk buttons, and small jet or black buckles at the knee; hose—black silk; shoes—plain court, with bows but without buckles; tie—white evening dress bow.

When attending levées and investitures, service dress uniform may be worn.

An improved uniform to be worn at ceremonial parades and for walking out, by warrant officers, non-commissioned officers and men of the services other than the household cavalry and foot guards, has been authorised by the army council. The alterations include a service dress jacket of improved pattern with higher collar and regimental buttons and badges; black belts for rifle regiments and white (buff) belts for others, except services possessing bandolier equipment.

Service dress.—An army council instruction has been issued to the effect that service dress trousers and shoes will not be worn by officers on parade or duty except on fatigue duties in barracks, at stables, or when employed in offices. When service dress is worn on parade or duty officers will wear the breeches and boots as laid down in the dress regulations.

When service dress is worn by other ranks on parade, on duty, or when walking out, putties are to be worn; but it is left to the discretion of general officers commanding to define within their stations the limits beyond which other ranks may not proceed unless properly dressed for walking out. Similarly at stations abroad where khaki drill is worn, it is left to general officers commanding to authorise such modifications as they may deem necessary owing to climatic conditions.

Decorations and medals will be worn with service dress by officers only at levées, or at investitures at which levée dress is worn, or when service dress is worn as review order.

Small ribands of decorations and medals will be worn by other ranks when walking out in service dress uniform.

Wearing of spurs.—The King's regulations have been amended so as to provide that spurs will be worn in full dress and service dress by all general officers, staff officers, officers of mounted services, field officers permanently in command of companies and infantry. Spurs will also be worn in mess dress, undress, and at levées and courts when Wellington boots are worn, by all general officers, staff officers, officers of mounted services and field officers of all services.

Emblems on soldiers' headdress.—All ranks of the army are now authorised by King's regulations to wear a poppy on the uniform headdress, when not on duty, on 11th November, being the anniversary of armistice day of the great war.

Royal Welsh fusiliers.—Official approval has been given for the wearing of the "flash," a knot of riband on the back of the coat below the collar, on service dress by other ranks of the royal Welsh fusiliers when on ceremonial parades and when walking out. A free initial issue of one flash will be made to each warrant officer, non-commissioned officer and man of the territorial as well as the regular battalions; but in the case of the territorials the flashes will have to be maintained out of Association funds.

Worcestershire regiment. Additional badge.—The King has approved of the Worcestershire regiment bearing an additional badge "the lion of the royal crest,"

on its colours. This device will be combined with the motto "firm" and the badge will be borne in the centre of the regimental colours.

VICTORY MEDAL.

Extension of grant.—An army order relative to the grant of the Victory medal assigns, as regards the Asiatic theatre of war, the following as the southern boundary of the zones within which the award of the medal will be made:—

"For operations in the Chin and Kuki hills, latitude 22° from the Chindwin river west to longitude 93° , with the addition of the tract of country known as the Pakokku Hill tracts and lying between latitude 20° and 22° and on both sides of longitude 94° ."

ROYAL CORPS OF SIGNALS.

First appointments as second lieutenants to the royal corps of signals will in future be made from the Royal Military Academy, Royal Military College and approved universities. But until such time as sufficient candidates are forthcoming from these sources to complete the establishment, subaltern officers with not more than 4 years' service may attend qualifying signal courses with a view to transfer to the corps of signals. Such officers will be required to pass the qualifying course successfully, and be seconded to the corps for 2 years before they can be transferred. All officers now seconded to the corps will remain seconded with a view to eventual transfer to the permanent establishment.

REGULAR ARMY RESERVE OF OFFICERS.

An amendment to the articles of the pay warrant governing promotion in class I. of the regular army reserve of officers provides that a second lieutenant may be promoted lieutenant on completion of two years' service without any examination. An officer transferred or appointed to the Regular Army Reserve of Officers prior to 1st February, 1924, will be eligible for promotion, provided that he has passed the qualifying examination and has completed the necessary service which, for promotion to captain, is 12 years; for promotion to major, 20 years; and for promotion to lieutenant-colonel, 25 years. Officers transferred or appointed to the regular army reserve of officers on or after 1st February, 1924, will not be eligible for promotion above the rank of lieutenant.

Military courts of inquiry.—An army council instruction directs attention to the fact that should it transpire during the sitting of a court of inquiry that the character or military reputation of any officer or soldier is affected by the evidence put forward, the president must immediately arrange for such officer or soldier to be afforded the fullest opportunity of being present throughout the inquiry and of making any statement and giving any evidence he may wish.

TERRITORIAL ARMY.

The peace establishment of the territorial army—exclusive of permanent staff—which in 1923-24 was 7,956 officers and 172,257 men, is raised for 1924-25 to 7,955 officers and 177,599 men.

REGIMENTS RE-DESIGNATED.

The King has approved of the 4th (Hallamshire) battalion, the York and Lancaster regiment, being in future designated "the Hallamshire battalion, the York and Lancaster regiment"; and of the 158th (North Wales) infantry brigade (T.A.) being designated the "158th (Royal Welsh) infantry brigade (T.A.)."

King Edward's horse.—The King has approved, with great regret, the

disbandment of King Edward's horse—the King's oversea dominions regiment, which was raised in 1901—with effect from 31st March last.

Candidates for adjutancies.—An amendment of the King's regulations respecting appointments of candidates from the regular forces to adjutancies in the territorial army provides that, in addition to other qualifications, candidates must obtain a certificate from the commanding officer of the unit in which they are serving to the effect that they are fully qualified for the appointment and are fit to be the adjutants of their own units. A further amendment provides that officers who assume territorial adjutancies between the end of January and the beginning of March in any year may now be permitted to sit for the staff college examination in the following year.

Recruiting.—Recruiting returns for the territorial army show that during February last 3,379 men were finally approved for service, an average of more than 800 a week, and practically double the number who enlisted in January. The best return was made by the northern command, including the Northumbrian and West Riding divisions, in which 736 men were approved, while the western command came second with 682 and the Scottish command third with 640.

OFFICERS' TRAINING CORPS.

The formation of new units of the junior division, officers' training corps, at Alleyn's school, East Dulwich; Birkenhead school, Birkenhead; and Canford school, Wimborne, Dorset, has been officially approved.

Certificates.—The results of the recent examination for officers' training corps certificates are:—certificate "A," which is a qualification for a commission in the territorial army and the regular army reserve of officers, was gained by 1,987 out of 2,817 candidates. In the successful list were 36 pupils from 13 schools unconnected with the officers' training corps. Certificate "B," one of the qualifications of university candidates for a commission in the regular army, was gained by 133 out of 225 candidates.

Cadet units.—It is officially stated that every recognised cadet unit must be affiliated to a territorial army unit, except where it is already affiliated to a unit of the regular army, in which case it must also be placed in direct touch with the Territorial Army Association of the county in which it is situated. The object of affiliation is to enable the cadets to profit by assistance and advice in instruction and training.

INDIA.

Lieut.-general sir H. B. Walker, K.C.B., K.C.M.G., D.S.O., took over the southern command in February last from lieut.-general sir W. R. Marshall, G.C.M.G., K.C.B., K.C.S.I.

Major-general the honourable Montagu-Stuart Wortley, K.C.M.G., C.B., D.S.O., took over the duties of quartermaster-general on the 18th February last in succession to major-general sir George F. MacMunn, K.C.B., K.C.S.I., D.S.O.

An agreement has been reached with the government of India that the number of British cavalry regiments stationed in India shall be six.

New Indian unit.—The government of India has sanctioned the addition of a special unit for training Indian *personnel*. The unit is to be designated the British infantry training company. The function of the new company will be to recruit, train, and administer the Indian combatant ranks who serve with British infantry battalions in India.

Disbandment.—The 5/19th Hyderabad regiment has been disbanded.

Revised rates of pay.—It has been decided that officers of the Indian army and the Indian medical service, and continuous service officers of the royal engineers, and military officers belonging to these classes who are in civil employment, must exercise, finally, on or before the 1st July, 1924, their option of electing to receive revised rates of pay while on duty or under instruction in the United Kingdom, leave pay, unemployed pay and pension which have been announced in various army instructions (India) on the subject.

It must be understood—

(a) That such election is final and cannot subsequently be altered, and that the revised rates must be accepted in their entirety; that is, no intermingling of old conditions and new can be sanctioned, *e.g.*, an officer cannot elect the old rules of unemployed pay and the new scale of pension or *vice versa*.

(b) That officers who now decide finally to withdraw their provisional acceptance of the revised rates must refund any overpayment which may have been made to them.

The conditions prescribed in clauses (a) and (b) above apply also to royal artillery officers selected for continuous service in the Indian ordnance department, and the I.A.O.C. and R.E., not continuous Indian service officers (including those in civil employment), but they are specially permitted to exercise the option of electing the revised rules or of remaining under the existing rules at any time before retirement. In the case of officers of the royal engineers (Indian army), the revised rates apply and the question of election does not arise.

Army officers in civil employ.—A lieutenant-colonel who entered the service before the 1st April, 1911, and was specially selected for increased pay on or before the 16th February, 1921, may remain in civil employ till he completes 30 years' service; but if he is specially selected for increased pay after the 16th February, 1921, he shall be retired on attaining the age of 55 years, unless he has completed 27 years' service for pension, in which case he may be retained until he completes such period of service.

Army health.—The director of medical services reports a progressive deterioration in the health of British troops in India since 1914. Up to that year there had been a steady improvement, due to the very close and successful study of the various causes of sickness. The new deterioration is ascribed to the outbreak of war, when the medical staff and seasoned troops were drafted out of India and replaced by fresh troops from England with medical officers inexperienced in combating tropical diseases. Recently, however, with a return to normal conditions, the health figures show an improvement which is expected to be progressive.

Malabar operations, grant of India general service medal.—It is officially announced that the "India general service medal, 1908" in silver, with clasp "Malabar," 1921-22, will be granted to all troops which took part in the Malabar operations between 20th August, 1921, and 25th February, 1922. The area of operations for the purposes of the award is that bounded on the south by the Ponnani river, on the east by a north and south line from Gudalur to the Ponnani river, on the north by an east and west line from Gudalur to the sea, and on the west by the sea. The medal and clasp will also be granted to authorised public and private followers and civilians borne on the war establishments (India). No other civilian will be eligible unless specifically approved by the army council. Individuals already in possession of the India general service medal will receive the clasp only.

FRANCE.

Death of general Nivelle.—The news of the death of general Nivelle, which took place in Paris, of double pneumonia, in March last, has been received with universal feelings of regret in the British army. He was born in 1856; at the commencement of the late war he commanded a regiment of Artillery, was appointed to a brigade in October, 1914, and in February, 1915, to the command of a division. At the end of March, 1915, he went to Verdun, and in April following took over the 2nd army. It is with his services at Verdun that his name will be chiefly associated, for it was in April and May, 1915, when in command there, that the German attacks were so relentlessly renewed; but generals Nivelle and Petain stoutly maintained the defence of the fortress until the pressure was relieved by the allied attacks on the Somme. In December, 1916, general Nivelle succeeded Marshal Joffre as commander-in-chief of the allied armies in France, and in April, 1917, he undertook the great offensive, which cost the French so many lives. In May of that year he was succeeded as commander-in-chief by general Petain.

General Nivelle spoke English fluently,—his mother was an English woman—and was thus enabled to converse freely with his British colleagues in the field without the aid of an interpreter.

He was well known to many British officers, and highly respected in the British army.

The French army is adopting a new automatic or "machine gun" rifle, as superior to all existing infantry weapons as the famous 75-millimètres piece of artillery was found to be to all other field guns during the great war. The new weapon is superior to anything hitherto produced both in working and in facility of handling, as well as simpler and easier for beginners than other weapons.

In March last the Chamber of Deputies passed the bill for army reorganisation which provides for the formation in peace time of 32 regular divisions in complete readiness for action, and the organisation of the country for the rapid production of munitions and war material in case of war.

JUGOSLAVIA.

The new army budget drawn up by the government of Yugoslavia has a peace strength of 112,600 officers and men. The number of officers is 7,896. The French government also recently opened for the Yugoslavia state a credit of 300,000,000 francs for the purchase in France of war material. In view of the fact that Yugoslavia possesses no war navy, the defence of the coast against naval attack consists of coast artillery and military planes. The duration of the service in Yugoslavia is one year and a half. Every eighteen months, therefore, over 100,000 men pass into the first "ban" of the reserve, and some years later these pass into the second "ban." In ten years the country will thus be able to create a reserve army of 750,000 men.

ROYAL AIR FORCE NOTES.

HOME.

APPOINTMENTS.—The following appointments have been made:—

Air commodore Charles L. Lambe, C.B., C.M.G., D.S.O., has been appointed air officer commanding Halton, in place of air vice marshal Francis R. Scarlett, C.B., D.S.O.

Air commodore Charles A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C., has been appointed director of personal services in the department of the air member for *personnel*.

Air commodore Tom I. Webb-Bowen, C.B., C.M.G., has been appointed to command inland area temporarily in place of air vice marshal John F. A. Higgins, C.B., D.S.O., A.F.C.

Air commodore Lionel E. O. Charlton, C.B., C.M.G., D.S.O., p.s.c., has been appointed to the command of No. 3 group, inland area, vice Webb-Bowen.

Air commodore Frederick C. Halahan, C.M.G., C.B.E., D.S.O., M.V.O., has been appointed for duty at the Air Ministry in the new post of director of technical development in the department of supply and research.

Air commodore Charles R. Samson, C.M.G., D.S.O., A.F.C., has been appointed to the command of No. 1 group, inland area, vice air commodore Eugene L. Gerrard, C.M.G., D.S.O., who has been appointed air officer commanding, Palestine command, vice major general sir Henry H. Tudor, K.C.B., C.M.G.

SHORT SERVICE COMMISSIONS.—As a result of the announcement of the expansion of the royal air force a large number of applications for short service commissions have been received from suitable candidates and it has been possible to fill the training classes as far ahead as September, 1924.

RESERVE OFFICERS.—The entry of pilots in the reserve of air force officers has proceeded more slowly, but the numbers have grown steadily, if slowly. The training facilities are being improved by the opening of two new schools, one of which will open on the 23rd April at Brough in Lincolnshire and will give training on seaplanes as well as landplanes.

CADET COLLEGE.—The number of vacancies at the R.A.F. (cadet) college, Cranwell, to be offered for competition at the June, 1924, examination has been fixed at 35. Twenty cadets passed out from the college in December of last year and 27 new entry cadets started training in January, the total number of cadets at present under training being 102.

AIRMEN.—Recruiting of airmen during the year 1923-24 was very satisfactory. No difficulty was experienced in obtaining recruits of a good type for all trades, both skilled and unskilled.

The training of specially enlisted skilled airmen is proceeding, and 20 have already qualified as fitters aero engine.

AIRCRAFT APPRENTICES.—The numbers under training at present are as follows :—

Halton	...	...	...	...	...	...	...	1,946
Flowerdown	...	...	...	...	...	...	...	276
Cranwell	...	...	...	...	...	...	...	985
Total								3,207

Approximately 415 aircraft apprentices are expected to pass out from Cranwell in September of this year. With the introduction of all metal aircraft into the royal air force the new trade of fitter rigger has been started and training in this new trade is proceeding.

EXPANSION.—It was announced in the Secretary of State's memorandum accompanying the air estimates for 1924-25 that the approximate total numbers of air force *personnel* involved in completing the approved scheme of expansion

for home defence will be 40,000. The numbers for 1924-5 are 35,000, an increase of 2,000 over the preceding year.

AUXILIARY AIR FORCE AND SPECIAL RESERVE.—Provision is also made in this year's estimates for the inauguration of the auxiliary air force and special reserve. Legislation is being introduced to enable these forces to be set up and when it is passed it is intended to proceed with the formation of squadrons additional to the 18 regular squadrons for home defence which are to be ready by April, 1925.

R.A.F. STAFF COLLEGE.—The second course at the R.A.F. staff college terminated on the 27th March, and the next course starts on the 5th May.

Twenty-one royal air force officers have been selected to attend from those who passed the qualifying examination. In addition, 2 officers from the royal navy, one from the British and one from the Indian army, one officer from the Royal Canadian air force and one from the Royal Australian air force will attend the course.

Air commodore Clark Hall, C.M.G., D.S.O., has left Andover on posting to the middle east.

LIAISON WITH DOMINIONS.—During the course of the imperial conference, it was stated that the home and dominion air force should keep each other informed of all particulars and developments as may be of interest or value to each other by means of periodical personal letters between the chiefs of staff.

The first quarterly letters from the chief of the air staff to the dominion air forces were sent in the beginning of April. The first letter has been received from the royal Canadian air force and is of great interest.

Perhaps the chief point of interest is the very great importance attached by the Canadian authorities to the use of aircraft for survey and mapping purposes and for detecting and fighting of forest fires.

WIRELESS.—From tests carried out by various ships of the British mercantile marine the range of the Air Ministry transmitting station, which broadcasts meteorological information, has been established at 1,500-2,000 miles.

Navigation by wireless direction-finding methods has been employed with continued success on the civil airways, and on several occasions aircraft have been enabled to complete journeys which would otherwise have proved impossible owing to adverse weather conditions.

MOVEMENTS OF SQUADRONS.—No. 12 squadron moved from Northolt to Andover 24th March, 1924.

No. 2 army co-operation squadron moved from Andover to Manston 31st March, 1924, for co-operation with eastern command.

FORMATION OF NEW UNITS; 1ST APRIL, 1924.—Nos. 3 and 17 squadrons, located at Manston and Hawkinge.

Nos. 9, 58 and 99 squadrons, located at Upavon, Worthy Down and Netheravon.

Each of the above squadrons comprise H.Q. and 1 flight.

The following additional flights were added to units on 1st May, 1924 :—

No. 12 squadron ...	...	...	...	...	...	1 flight
No. 41 squadron ...	...	...	...	...	...	1 flight
No. 111 squadron ...	...	...	...	...	...	1 flight
No. 100 squadron ...	...	...	...	...	...	1 flight

No. 6 group will form, with H.Q. at Kenley, on 1st May, 1924.

The functions of this group will be the command, training, and administration of all the home defence fighter units.

On the same date No. 1 group will reform at Kidbrooke, and will comprise the remaining units of the old group.

The move of the marine experimental establishment from Grain to Felixstowe was completed on 14th March, 1924.

SCHOOL OF NAVAL CO-OPERATION, LEE-ON-SOLENT.—Next course starts on May 20th, 1924. The following officers will attend this course:—8 naval officers, 3 R.A.F. officers.

AIRCRAFT-CARRIERS.—Successful deck-landing training has been carried out during March in H.M.S. "Hermes" and "Eagle." H.M.S. "Argus" has carried out exercise with the combined Mediterranean and Atlantic fleets in the Mediterranean. H.M.S. "Eagle" leaves shortly for the Mediterranean with a full complement of aircraft.

SCHOOL OF ARMY CO-OPERATION, OLD SARUM.—The next course begins on 1st April and 15 army officers are expected to attend.

R.A.F. CO-OPERATION WITH THE NAVY.—During the last quarter the three aircraft-carriers H.M.S. "Eagle," "Argus" and "Hermes" have commissioned for service and have been equipped with their full complement of naval co-operation flights.

"Eagle" commissioned at Portsmouth on 26th February, 1924, and is at present engaged in deck-landing training and experimental work. She will, on completion of these operations, embark four flights and proceed to join the Mediterranean fleet about the end of May.

"Argus" left Portsmouth on 15th February, 1924, to join in the annual spring cruise of the Atlantic fleet, which had left earlier. She embarked prior to departure No. 442 (reconnaissance) flight and a mixed flight of fighters and general service-seaplanes, for operations with the Atlantic fleet.

"Hermes" commissioned in February and embarked No. 441 (reconnaissance) flight and Nos. 401 and 403 (fighter) flights; deck-landing training has been carried out with these aircraft in the Firth of Forth.

H.M. seaplane-carrier "Pegasus" left Devonport on 21st March for the China station with a special flight equipped for aerial survey duties.

COURSES.—Courses for officers are as before. The photographic course started at the school of photography on 1st April, 1924: the course on the Interpretation of aerial photographs commencing on 1st April, 1923.

ROYAL AIR FORCE PAGEANT.—It is intended to hold this pageant at Hendon on Saturday, 28th June. The proceeds of the pageant will, as in previous years, be devoted to charities connected with the royal air force memorial fund.

THE UNVEILING OF THE R. 38 MEMORIAL.—This memorial, which has been erected in memory of the British and American officers and men who lost their lives in the disaster when the airship R. 38 was destroyed, was unveiled on 11th April, 1924, by air vice-marshal sir Vyell Vyvyan, K.C.B., D.S.O., commanding the coastal area royal air force. The dedication service was conducted by the bishop of Hull, assisted by the rev. H. D. L. Viener, C.B.E., M.A., honorary chaplain to the King and chaplain-in-chief to the royal air force and the rev. W. Moffat, M.A., B.D., staff chaplain. Amongst those present was captain Hussy, representing the United States navy and the American embassy.

The memorial consisted of a celtic cross of Portland stone 8 feet high, on two stone bastions, one on each side. There are three bronze plaques on the bastions, the one on the left bearing the names of the British officers and men, the one on

the right the names of the American officers and men, and the centre one has the following inscription on it:—To the glory of God and in memory of the officers and men of the royal air force and the rigid air detachment United States navy, members of the staffs of the National Physical Laboratory and of the Royal Airship Works, lost in the airship R. 38 (Z.R. 2) August 24th, 1921.

It will be recalled that the R. 38 was destroyed on 24th August, 1921, when she was carrying out her last trial before being handed over to the United States navy for the flight across the Atlantic to America. She had on board 32 British and 17 American officers and men. Of these, only 3 British and 1 American were saved. Amongst those who were lost were air commodore E. M. Maitland, C.M.G., D.S.O., who at one time was director of airships, Air Ministry. Mr. C. I. R. Campbell, head of the airship design and construction department, and commander L. A. H. Maxfield, in command of the United States naval airship detachment under training at Howden.

CIVIL AVIATION.

By the end of last year, 45,531 passengers had been carried to or from the continent by air. Out of this total, 33,362 passengers (73 per cent. of the total) travelled in British aircraft.

The increase in traffic which took place in 1923 more than maintained the rate of increase noted in the previous year. A total of 15,136 passengers and 825 tons of goods were carried, as compared with 12,359 passengers and 477 tons of goods in 1922. The proportion of passengers carried in British machines was 79 per cent. in 1923, against 77 per cent. in 1922.

An indication of the increasing use made of the British cross-Channel air lines is given by the average load carried on each flight. In 1922 the average load was about 810 lbs. (3 or 4 passengers and about 150 lbs. of goods). In 1923 the figure increased to 1,200 lbs. (4 or 5 passengers and about 270 lbs. of goods), an increase of 50 per cent.

The value of merchandise imported and exported by aircraft (British and foreign combined) reached, at the end of 1923, the high total of £3,180,319. The total for 1923 exceeded three-quarters of a million sterling.

The mileage flown in 1923 by British aircraft engaged in air transport was 943,000 miles (equal to about 38 circuits of the world), an increase of 226,000 miles over the corresponding figures for 1922.

The reliability of the British air lines in 1923 was maintained at about the same level as in 1922, in spite of the fact that new routes were opened and longer flights were made. Whereas in 1922, on the London-Paris route, which has been in operation since 1919, the flights completed within the time limit fixed under the subsidy scheme amounted to 92.5 per cent. of the total commenced, the corresponding figure for all routes in 1923 reached 91 per cent.

TWO-SEATER LIGHT AEROPLANE COMPETITION.—With a view to encouraging the production of a low powered light aeroplane for instructional purposes in the R.A.F., it is proposed to hold a competition, later in the year, for light aeroplanes carrying one pilot and one passenger. The aeroplane, including the engine and magneto, must be entirely constructed in the British Empire; it is to be fitted for dual control, and the engine to be used must not exceed 1,100 cc. (approximately 11 h.p.).

The competition will include the following tests:—

- (a) Ease of dismantling, housing and re-erecting.
- (b) Demonstration of dual control.

(c) Speeds, high and low.

(d) Getting off and landing, etc., etc.

NOTES ON WINTER FLYING.—Experimental work has been carried out in Canada with a view to testing the possibility of flying under extreme winter conditions. An aeroplane, fitted with an undercarriage consisting of two skis, instead of the usual wheels, has made satisfactory landings on snow and also successfully taken off. The chief source of trouble would appear to arise from the water-cooled engine, owing to the water freezing in the radiator; by adding anti-freezing mixture to the water this trouble can be successfully overcome. Difficulty is experienced in starting up the engine when cold, but by supplying the engine with hot oil and water, a normal start is possible.

Much valuable data has been ascertained regarding the behaviour of aircraft instruments under these conditions.

BRITISH WORLD FLIGHT.—An attempt to fly round the world was commenced on 25th March by squadron leader A. Stuart MacLaren, royal air force, accompanied by flying officer W. H. Plenderleith, royal air force, and sergeant R. Andrews, royal air force. Starting from Calshot (Southampton) they ran into bad weather before the Channel was crossed, and had a difficult flight through very heavy weather until on 30th March they reached Corfu, where a landing had to be made owing to engine trouble. Repairs to the engine were expected to take about 10 days.

Squadron leader MacLaren has allowed about four months for the complete journey of about 23,250 miles. His route beyond Greece lies over Egypt, Palestine, Iraq, Persia, India, Burma, Siam, Indo-China, China, Japan, the Aleutian Islands, Alaska, Canada, Newfoundland, the Azores, Portugal, France and so back to England. The longest stage is that from St. John's, Newfoundland, to Horta (Azores), 1,350 statute miles. This stage may be shortened to 1,225 statute miles if a landing is made at Santa Cruz (Azores).

The machine used for the flight is a Vickers "Vulture" amphibian, fitted with a 450 h.p. Napier "Lion" engine.

In connection with the British and United States round-the-world flights, facilities have been provided whereby communication by wireless can be established between the royal air force stations along the route to be followed and the aircraft engaged in these flights. Maps and charts for the route of the British flight have been prepared and supplied to the airmen.

IRAQ.

GENERAL.—During November major-general sir G. F. Boyd, K.C.B., and staff, with the students of the Quetta staff college, carried out an instructional tour of the battlefields of Iraq. They arrived at Basrah on the 1st and proceeded up river, escorted by H.M. defence vessel "Gadfly," arriving at Baghdad on the 13th. Stops were made at various places of interest *en route*. On the 14th the party witnessed a display of aerial bombing and firing at Hinaidi and visits were paid to the squadrons and the Iraq aircraft depôt, where different types of machines and equipment were on view. Later, a display of formation flying was given, and also an exhibition of the use of the Vickers Vernon troop carrier. During the night several officers were given flights in the Vernons of No. 45 squadron, and on the following day they were given local flights. On the 14th a party of thirty-one proceeded to Mosul by air, and, on the day following, went on to Kirkuk, some going *via* the Rowanduz area and the others *via* Erbil, all returning to Baghdad on the same day. The country round Rowanduz is of special interest, being the scene of recent operations on a considerable scale, and also on account of its many points of similarity to the Indian frontier. The party left Baghdad by train for Basrah on the 17th.

On the 9th information was received that one of the staff college students had broken his leg. A Vickers Viking amphibian was despatched from Baghdad, and landed on the Tigris at Shumran alongside the officer's vessel. The injured officer was transferred to the machine and flown to Hinaidi aerodrome. He was admitted to hospital on the same day, having travelled over 100 miles.

The Nairn Transport Company continue to run a regular motor service between Baghdad and Beirut. The air mail track is followed from Baghdad as far as landing ground 8 or 9, and thence the route is indicated by a guide, who is carried in one of the cars. Letters are now being received in Baghdad from London within 9 days. Some quick runs are being made. On one occasion the cars which left Damascus at 0600 hours arrived at Ramadi at 2230 hours the same day, a run of 460 miles.

The reduction of the Imperial garrison in Iraq continues. The 2nd battalion West Yorkshire regiment and the 1/11th Sikh regiment left Iraq during January, the former being relieved by the 1st battalion royal Inniskilling fusiliers.

During February, the 2nd battalion Cameronians (Scottish rifles) and the 5/7th Rajput regiment left, the latter being relieved by the 1/15th Punjab regiment.

The Cairo-Baghdad Service Air Mail has continued to run regularly throughout the period under review. As the P. & O. mail steamships normally arrive at Port Said on a Wednesday the day of departure of the air mail from Cairo has been advanced from Friday to Thursday, a saving of time in the transit of letters from London to Baghdad being thus effected.

The effect of the trans-desert motor service, run by the Nairn Transport Company, has been to reduce considerably the amount of mail carried over the air route from Iraq to Egypt, but has not had much effect on the volume of Egypt to Iraq traffic.

There was a large increase in the amount of mail carried during 1923 as compared with 1922, the G.P.O. reporting that 175,000 letters were carried in 1922 and 315,000 in 1923.

During December, January and February, the total mail weighed 4,641 lbs. and 51 R.A.F., 7 military and 3 civilian passengers were carried.

The track has not been remarked since March, 1923, the visibility being still satisfactory.

OPERATIONS.—In spite of the continued patience on the part of the government sheikh Mahmoud at Sulaimaniyah persisted in his refusal to comply with government orders. Demonstration flights were carried out over the town without avail, so in December it was decided that more drastic action should be taken against him. A surprise bombing attack was therefore made on his quarters at dawn on the 25th. Although it has since been ascertained that Mahmoud was not in his house at the time of the raid, yet, in addition to the damage done, it appears that his anti-British propaganda has received an effective set-back.

Towards the end of December, trouble threatened between two sections of the Dhafir tribe. Two aeroplanes were accordingly sent to Nasiriyah, where the special service officer was picked up. The machines then proceeded to Quasir. Here co-operation was carried out with a small party of police, and the two tribes were located nearby. One machine, with the S.S.O., then landed, and at the conference which subsequently took place promises were obtained from the two leaders and hostilities prevented.

During December it became necessary to resume the operations against the tribes in the vicinity of Samawah.

The tribesmen in this area are very well armed, and the place has many forts which are held by petty chiefs who are at perpetual feud with one another, and their attitude eventually became a sign of weakness of administration to the

whole Euphrates area. As the control of the Iraq government over this area has for some time been of the most nebulous description, it was a plague spot which might at any time infect the surrounding population and endanger the safety of the Baghdad-Basrah railway, which runs very close to this country. These tribes also blocked the Euphrates with unauthorised dams, which prevented irrigation and promoted innumerable tribal feuds.

Intensive air action was accordingly taken on the 18th and the following days, and the whole district was subdued. On conclusion of the air operations, police toured the area and completed the demolition of forts and war towers. The tribes returned to their villages during January. The result came up to all expectations, and the Beni Huchaim are now on satisfactory terms with the government. Irrigation officers have been allowed to inspect the country and destroy the offending dams.

INDIA.

GENERAL.—During December all squadrons were busily occupied in training. In addition most units were employed in co-operation with the army. Flights were attached to various practice camps, and many demonstration flights were made and tactical exercises carried out. During the course of these camps a number of army officers were taken up for air experience and map reading, and also to demonstrate the appearance of various ground formations from the air.

OPERATIONS.—No. 31 squadron has been stationed at Dardoni, and various reconnaissances were successfully carried out during the period under review.

On 1st and 3rd December, nine and six machines respectively co-operated with the troops in their withdrawal from Sararogha to Kotkai and from Kotkai to Jandola.

On 8th December, No. 60 squadron carried out demonstration flights over Lundi Kotal on the occasion of a meeting between the chief commissioner N.W.F.P. and the governor of Jalalabad. The discussion, with the help of tribal jirgas, was concerned with measures for combating the murder gang. It is reported that the Afghan tribesmen were much impressed by the low-flying aircraft.

During February there were indications of trouble with the Abour Rhaman Khel living in the Spli Toi valley. A demonstration flight was accordingly made over this neighbourhood on the 10th of the month. No further developments have been reported.

EGYPT.

Training has been steadily progressing, and in addition a certain amount of work has been carried out in co-operation with the army.

On several occasions machines have been employed on escort duty.

A detached flight of 208 squadron was stationed at Khartoum for a month, and was employed in co-operation with the army.

PALESTINE.

The situation in Palestine remains unchanged, though of late extreme Arab circles have exhibited a slightly more anti-British tone.

During January the visit of King Hussein to Amman occupied political circles to the exclusion of almost every other topic. Nationalist politics have not been much in evidence of late.

Public security has been good, except for a few burglaries in Northern Palestine and the one notable exception of the murder by highwaymen of sergeant-major Walker and quartermaster-sergeant Dunn of the Duke of

Wellington's regiment, who were driving in a private motor-car in the vicinity of Ludd.

In January aircraft carried out two reconnaissances from Beersheba towards the Dead sea in order to locate brigands, whose presence had been reported in that area. These flights were unsuccessful. It should be noted, however, that this is not a normal use of aircraft, as the location from the air of very small bands in wild broken country is practically impossible.

Training has been progressing, and a certain amount of co-operation has been carried out with the Palestine gendarmerie and armoured cars.

The armoured cars have made several road reconnaissances.

The Palestine wing H.Q. was absorbed in command H.Q., Palestine, with effect from 1st February, 1924; air commodore E. L. Gerrard, C.M.G., D.S.O., assumed command of command H.Q., Palestine, vice major-general sir H. H. Tudor, K.C.B., C.M.G., with effect from 1st April, 1924.

TRANS-JORDAN.

Nothing of outstanding interest has occurred during the last three months.

ADEN.

A demonstration flight over Western Kavr was made on 1st December, during which messages of encouragement to the tribesmen in their resistance to Zaidi forces were dropped in the main villages.

In January, reconnaissances were made of the Mansuri of the Alawi, Mhalai, Azbakri and of the Wadi Tiban and Humedi country.

Co-operation has been carried out with the Norfolk regiment, Aden troop, and the Aden camel battery.

SOMALILAND.

Photographs of the Somaliland landing ground were taken during January.

MALTA.

No. 481 (seaplane) flight has carried out numerous co-operation exercises with H.M. ships of Mediterranean fleet, also with the military garrison at Malta.

The R.A.F. station at Valafrana was visited on 16th February by H.M. the Queen of Roumania, accompanied by the naval commander-in-chief, for whom an aerial display was arranged.

The station was again visited by the first sea lord of the admiralty, accompanied by the naval commander-in-chief, on 21st March.

AVIATION IN FOREIGN COUNTRIES.

UNITED STATES OF AMERICA.

I. U.S.A. COMBINED WINTER MANŒUVRES IN THE PANAMA CANAL ZONE, JANUARY, 1924.—The object of the manœuvres in the canal zone was to determine whether the defences of the canal were strong enough to hold up an enemy fleet from the Atlantic while the U.S.A. fleet passed through the canal from the Pacific to engage it; and, also to test the practicability of control of operations by a joint army and navy board.

The air arm of the "blue" defence forces was composed of—

- (a) the army air service units: 1 bombing squadron, 1 observation squadron and 1 fighting squadron, some 40 aeroplanes in all, stationed at France Field, near Colon, and
- (b) the aircraft squadrons of the Pacific fleet comprising: 1 torpedo and bombing squadron, 2 observation squadrons and 1 fighting squadron, a total of 46 machines, which were carried dismantled in the aircraft tenders "Jason" and "Arastook."
- (c) two observation machines on both the U.S.S. "Tennessee" battleship and the U.S.S. "Milwaukee" light cruiser.

The "black" enemy aircraft was composed of the aircraft squadrons, Atlantic fleet, of which—

- (a) 1 torpedo and bombing squadron, 1 observation squadron and 1 scouting squadron—in all 27 aeroplanes—flew to the scene of action from Hampton Roads naval air base, Virginia, a distance of approximately 1,550 nautical miles, tended by the aircraft tenders "Wright," "Sandpiper" and "Teal," and
- (b) detachments of a fighting squadron and a torpedo and bombing squadron some 10 machines in all—were carried by the aircraft-carrier "Langley."

On 16th January, while the "blue" fleet was passing through the canal, the "Langley" attempted to send off some bombers to impede it, but was unable owing to the rough sea. However, a few "black" machines, based ashore, attempted to bomb the Gatun locks, but were driven off by anti-aircraft fire.

Following this an attack was delivered on the "Langley" by 5 "blue" army bombers and 5 "blue" navy torpedo machines.

The "Langley" had 3 machines in the air and three ready on deck, so the result was a lively combat, resulting in the bombers being driven off by the fighters.

There is very little information available concerning the subsequent operations, but the official deductions from the umpire's decisions are to the effect that the "black" aircraft gained local superiority in the air. The resulting failure of the "blue" reconnaissance machines to operate effectively enabled the "black" fleet to get within effective range of the canal mouth, and so to destroy the "blue" ships as they emerged, to silence the guns at forts Randolph and Sherman, and to concentrate fire on the Gatun locks with their superior 16-inch guns.

In official circles, it is considered as a result of these operations that the defences of the canal are totally inadequate.

FLEET AIR MANŒUVRES IN THE CARIBBEAN SEA, FEBRUARY, 1924.—These operations were varied, the chief scheme being the defence of Culebra, Porto Rico, against an enemy fleet from Panama. The most interesting features recorded are:—

- (a) Reconnaissances during which contact was made with the enemy fleet 60 miles out to sea, and the "Langley" and the transport "Henderson" were attacked with bombs and torpedoes and reported as sunk.
- (b) Counterattack on bombing machines by the fighters off the "Langley."
- (c) Enemy efforts to land spotted by aircraft, which were in constant wireless communication with the ground defence forces.
- (d) Night mine-sweeping and landing operations by the enemy exposed by means of aircraft dropping parachute flares and affording targets for shore batteries.
- (e) Artillery co-operation by day and night.

- (f) Wireless communication between aircraft and submerged submarines.
- (g) The dismantling and stowage of 46 aeroplanes in the two tenders " Jason " and " Arastook " in two days.

The results deduced from these operations are not known.

FRANCE.

MILITARY AVIATION.—The military air service is undergoing a complete re-organisation. In the past this service has consisted of two branches known as the " division aérienne," an independent striking force composed of fighting and bombing air regiments, and " l'aviation d'observation," composed of air regiments equipped for army co-operation. The same number of units are now grouped in two divisions, both of which are of mixed character, consisting of brigades made up of different types of regiments.

The first air division has its headquarters at Metz and comprises all the air units on the eastern frontier and in occupied Germany, and the second air division consists of all air units in the interior and has its headquarters in Paris.

COLONIAL AVIATION.—The following information published in the weekly bulletin of French aeronautics received from the Under-Secretariat of State for Air indicates the work which is being carried out by the colonial squadrons in Indo-China :—

Surveying operations have consisted of a survey of flooded areas around Hanoi, of which 356 photographs have been taken.

Aerial surveys have also been carried out of Mao-he coal fields, of which 108 photographs were taken and surveys of private concessions in the cape of St. Jacques, Doson, Mytho regions, of which 200 photographs were taken. The Tombs of the Kings at Bai-Thuong have been completely photographed.

During the interruption of the mail traffic owing to floods, an air mail service operated regularly from Hanoi to Haiphong and *vice versa*.

On several occasions of political importance or of French or native festivities the air service have given demonstrations.

CIVIL AVIATION.—On Saturday, 29th March, the French cabinet decided that as a measure of economy all under-secretaries of state should be abolished. In view, however, of the eminent services rendered by M. Laurent Eynac, the under-secretary of state for air, he was invited to remain at the head of the various departments which had constituted his under-secretariat.

These departments consist of :—

Service technique de l'aéronautique, which carries out research work for the army, navy, colonial and civil aviation.

Service des fabrications de l'aéronautique, which carries out all contract and supply for the services and control of the aircraft industry.

Service de la navigation aérienne, which controls civil aviation.

The office national météorologique.

M. Eynac has accepted this proposal and is to remain an unpaid controller of the departments mentioned above.

GERMANY.

As is well known, the Allies have imposed certain restrictions on the aircraft which Germany is allowed to possess.

It was not to be expected that the Germans, debarred from indulging in large and powerful aircraft, would be content to sit with folded hands waiting for a better

day. It was, therefore, to be expected that they would turn their activities into channels which still remained open to them, namely research, and small-powered aircraft and gliders.

This was necessary if the skilled technical staff, assembled during the war, were not to be dispersed and the laboratories and workshops closed down and wasted. Of the firms specialising in light aeroplanes, Dietrich Gobiet, Heinkel, Caspar, and Stahlwerke Mark, are the most noteworthy, and they have mainly produced little two-seater touring aircraft with engines generally about 50 h.p. by Haacke, Marke and Siemens-Halske.

The latest product of the Dietrich Gobiet is an "aerial Ford," which it is hoped to standardise and produce in bulk.

The interest in gliders has been largely stimulated by the technical colleges, in particular those of Aachen, Hanover and Darmstadt, and the results obtained in the glider trials held each year since 1920 in the Rhone district have led to attempts to carry out gliding flight both over land and water. An important sea gliding meeting was held last year on a lagoon on the Baltic coast near Königsberg, in which about a dozen sea-gliders took part.

The German interest in this connection has led to the formation of the Segelfluggesellschaft (gliding flight company), which is responsible for all matters connected with gliding in Germany.

With regard to flying *personnel*, every effort is made by countless local aero clubs, unions and associations to keep ex-service pilots and observers in constant and close touch with one another, the officials being mainly men previously well known in the air service.

One union, Deutscher Luftfahrt Verband, has branches all over Germany.

A vast aviation propaganda movement has been called into being which counts on awaking the interest of children and young people in aeronautics. Practically every airman's association has its juvenile branch, which provides for lantern lectures and the construction of model gliders. Frequent competitions for models are held and interest is very keen. Again, almost every university and technical college has its aeronautic faculty, and from the increasing number of courses advertised, the number of potential aeronautical engineers in Germany must be very large, whilst, as mentioned above, the technical colleges vie with one another on the practical side in building full-sized gliders which actually fly.

Meanwhile, factories in Russia, Switzerland, Italy and Denmark, in which Germany has a large interest, are producing aircraft under German supervision.

We also find activity in the form of air lines in Russia and South America, and German representatives even in Afghanistan and China.

There is no doubt that in spite of her numerous difficulties Germany has kept the aeronautical industry alive and has systematically educated public opinion to take a real and active interest in aviation in all its branches.

ITALY.

The 1924 programme of the Italian royal air force calls for 66 squadrons and a total of 1,600 machines in efficient condition, by the 30th June, 1924. When this programme was initiated last year there were only 30 squadrons in service, and considerable progress has been made in carrying out the expansion. It is not, however, expected that the 1924 programme will be actually completed before the end of this year.

A royal aerodromes corps is being formed. This is to be a military corps dependent on the commissariat for aeronautics, and will be entrusted with the

supervision of all the services necessary for the working and maintenance of aerodromes and seaplane stations.

One of the greatest difficulties that Italy had to contend with in the reconstruction of her air force was the lack of any modern engine. Stocks of war-time engines were available, but no new designs were in production. This state of affairs is now being remedied. The Fiat firm is working on a 375 h.p. and an 800 h.p. engine, and a 300 h.p. radial engine is also being studied. This firm has also built with satisfactory results a 12-cylinder V-type engine developing 450-500 h.p.

Isotta-Fraschini have completed the tests of their V.9 340 h.p. engine, and are now engaged on a 12-cylinder V-type developing 500 h.p.

The Columba firm is also building a 12-cylinder V-type of 450 h.p.

SPAIN.

A decree has been issued which authorises the appointment of a commission to consider the possibilities of co-ordinating naval, military and civil aviation. At present, all three branches bear no relation to each other.

MILITARY AIR SERVICE.—At present the military air service is organised as follows :—

Chief of Military Aviation, in command of the air force in Spain and Morocco.

Inspector of Training, in charge of the technical and tactical training of *personnel* in the flying schools.

Inspector of Material, in charge of machines, workshops, laboratories, etc.

The tactical unit is a flight, but at present there are no complete units in the Peninsula, as war establishments are still under consideration.

The *personnel* and machines are grouped in four air bases and two secondary bases, according to the exigencies of the service. The only complete units are in Morocco.

The *personnel* consist of :—

In Morocco : 60 officer pilots, 50 officer observers, 50 O.R. pilots, 300 mechanics, etc. There are reported to be 90 aeroplanes in Morocco.

In the Schools in Spain : 30 officer pilots, 30 officer observers, 30 O.R. pilots, 100 mechanics, etc. There are about 40 aeroplanes in use for school purposes.

At the Air bases : 20 officer pilots, 10 officer observers, 200 mechanics etc. Sixty machines are at the bases.

In addition to the machines above, 100 more have recently been purchased, but their distribution is not known.

NAVAL AIR SERVICE.—The naval air service is administered by a naval air staff under the Minister of Marine.

There are two seaplane stations, one at Barcelona and the other at Cartagena, and also a school at Alcala de Henares. There is also a naval aerodrome at Barcelona.

The naval air service possesses 28 Macchi seaplanes with Isotta-Truschini engines, 5 F.3 flying boats with Rolls Royce engines, 3 Martinsyde F.4 a's and 10 training Avro aeroplanes.

Twelve Rolls Royce engined supermarine amphibians have recently been ordered.

AIRSHIPS.

AMERICA.

The rigid airship "Shenandoah" is now undergoing repairs as a result of the damage sustained when she broke away from her mooring mast at Lakehurst on 16th January. During a gust of 68 m.p.h. the top rudder plane collapsed. This caused the ship to roll heavily, which resulted in the complete mooring gear being wrenched out of the bow and left hanging on the mooring mast. The outer cover was badly torn and the two forward gas bags deflated. In bringing the "Shenandoah" safely back to her base again, the pilot showed great skill and clearly demonstrated the ship's airworthiness under abnormal conditions. It is expected that the "Shenandoah" will be ready for flight again by 1st May.

Z.R. 3, the rigid airship being constructed for America at Friedrichshafen, will probably be ready for trials during April. Delay in completion of this ship is attributed to labour troubles in Germany, which have held up delivery of the engines. Her main characteristics are as follows:—Capacity, 2,475,000 cu. ft.; length, 656 feet; height, 101 feet 8 ins.; diameter, 90 feet; gross lift (estimated), 80 tons; disposable lift (estimated), 40 tons; 5 Maybach engines of 400 h.p.; max. speed (estimated), 75.8 m.p.h.; cruising speed, 67 m.p.h.; endurance at full speed (estimated), 46 hours; cruising speed, 78 hours. Comfortable cabin accommodation has been provided for officers and crew, as well as for twenty passengers.

FRANCE.

The finding of the High Commission of Inquiry on the "Dixmude" disaster was that the "loss of the airship was due to lightning."

If the "Dixmude" had actually used all her fuel, she would stand a poor chance of successfully weathering a violent thunderstorm. With all engines stopped, the ship would be at the mercy of the storm, and if forced above her ceiling by a violent upward gust of wind, gas would be automatically valved in large quantities. If the ship was struck by lightning under these circumstances, there would be little hope of her not being set alight and totally destroyed.

If, however, the ship still had her engines running when the disaster occurred, it is just as probable that structural failure of the hull, caused by pushing the ship through a really bad storm, was the cause of her end. The "Dixmude" was designed by the Germans for flying at great altitudes only, and this necessitated construction on a very light basis, which would render the ship totally unsuitable for extended cruises.

It is worthy of note that during the war several German rigid airships were struck by lightning, and, although a certain amount of damage was caused to their hulls, they escaped destruction in each case.

JAPAN.

On 19th March a small naval non-rigid airship caught fire in the air when N.E. of Tokyo and crashed. The crew of five lost their lives. This ship was of the same class as the British S.S. type. No details of the disaster are as yet available.

ITALY.

The new semi-rigid "N. 1" has recently completed trial flights. She has a well-designed passenger saloon capable of accommodating 20 people, and will

presumably be used for commercial purposes. Her characteristics are as follows: Height, 79 feet; diameter, 60 feet; gross lift, 17 tons; useful lift, 6 tons; three Maybach engines of 250 h.p.; max. speed, 63 m.p.h.; cruising speed, 53 m.p.h.; ceiling, 13,000 feet; endurance at full speed, 33 hours, and at cruising speed, 64 hours.

PRINCIPAL ADDITIONS TO THE LIBRARY.

January, February, March and April, 1924.

- A HISTORY OF THE ART OF WAR IN THE MIDDLE AGES. By Sir Charles Oman, K.B.E., M.P. 2 vols. £1 16s. od. 8vo. London, 1924.
- SKETCH OF THE LIFE OF LT.-COLONEL CHAMPION OF THE 95TH REGIMENT. 8vo. (Printed for Private circulation only.) 1855.
- OLD NAVAL PRINTS, THEIR ARTISTS AND ENGRAVERS. By Comd. C. N. Robinson, R.N. Illustrations. £3 3s. od. Folio. (The Studio, Lt.) London, 1924. (Presented by the Publishers).
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- EAST PERSIA: A BACKWATER OF THE GREAT WAR. By Brig.-General W. E. R. Dickson, C.M.G., C.I.E. 15s. 8vo. London, 1924.
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- GENERAL BOTHA. By Earl Buxton. 12s. 8vo. London, 1924.
- THE LOST DOMINION. By A. Carthill. 15s. 8vo. London, 1924.
- MERCHANT SHIP TYPES. By A. C. Hardy. Illustrations and Plans. 15s. 8vo. Chapman & Hall, Lt. London, 1924. (Presented by the Publishers).
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- LA BATAILLE DÉCISIVE. Par Lieutenant de Vaisseau d'Halewyn. 8vo. Paris 1923. (Presented by the Publishers).

- ACADÉMIE DE MARINE. Tome I. 1922. 8vo. Paris, 1923. (Presented by the Publishers).
- ARMY ORGANIZATION AND ADMINISTRATION. By "An Officer of the Line." 4s. 6d. 8vo. Sifton, Praed & Co. London, 1924. (Presented by the Publishers).
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- NAVAL GUNS IN FLANDERS, 1914-1915. By L. F. R. Illustrations and Maps. 14s. 8vo. London, 1920.
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- LETTERS WRITTEN DURING THE INDIAN MUTINY by F. Roberts, afterwards Field Marshal Earl Roberts, V.C., K.G., with a Preface by his daughter, Countess Roberts. 10s. 6d. 8vo. Lond., 1924.
- AN AMBASSADOR'S MEMOIRS. By M. Paléologue. Vol. II. 18s. 8vo. Lond., 1924.
- The following books are presented by Capt. H. N. Jackson:—
- FIGHTING ADMIRALS. By J. Barnett. 8vo. Lond., 1910.
- RALPH HEATHCOTE: LETTERS OF A YOUNG DIPLOMATIST AND SOLDIER DURING THE TIME OF NAPOLEON. By Countess G. Gröben. 8vo. London, 1907.
- THE DUKE OF REICHSTADT (NAPOLEON II.). By E. De Wertheimer. 8vo. London, 1906.
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- THE STUART DYNASTY. By P. M. Thornton. 8vo. London, 1890.
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- HISTORY OF THE EAST SURREY REGIMENT. Vol. II. 1914-1917; Vol. III. 1917-1919. By Colonel H. W. Pearse, D.S.O., and Brig.-General H. S. Sloman, C.M.G., D.S.O. Illustrations and Maps. 8vo. (The Medici Society.). London, 1923 and 1924. (Presented by Regimental History Committee of the East Surrey Regiment).
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THE QUEEN'S OWN ROYAL WEST KENT REGIMENT, 1914-1919. By Capt. C. T. Atkinson. Illustrations and Maps. 7s. 6d. (Simpkins, Marshall, Hamilton, Kent & Co.). London, 1924. (Presented by the Publishers).

REVIEWS OF BOOKS.

Neill's "Blue Caps." Vol. 2, 1826-1914. By COLONEL H. C. WYLLY, C.B. (Gale and Polden.)

The late Major C. H. Dale, a Mutiny veteran of the "Blue Caps," had completed the manuscript of Volumes 1 and 2 before his death. It is, therefore, very appropriate that this second volume, which is chiefly interesting for its account of the part played by the regiment in the Indian Mutiny, should be dedicated to him.

Colonel James Neill took command of the Madras Fusiliers before they left Madras for Calcutta. Being promoted brigadier, he did not lead his "Blue Caps" in the first advance on Lucknow; but after Outram joined Havelock at Cawnpore, the Regiment was in the brigade which Neill commanded. On 25th September, 1857, the Fusiliers stormed the Charbagh bridge, and Neill was killed just before his "Blue Caps" and the 78th Highlanders reached the residency.

No corps played a more distinguished part in these and the subsequent operations than the Madras Fusiliers, who were left as part of the garrison of Alam Bagh, while details of the regiment advanced later with Sir Colin Campbell's force. After the final reduction of Lucknow in March, 1858, the Fusiliers remained in Oudh until November, by which time all the rebel forces were subdued. The description of these events is aided by frequent quotations from the letters of officers who were present, and many contemporary portraits and prints are reproduced.

The second Burmese war and the South African war, 1899-1902, also come within the period covered by this volume, and there are many changes in the style and fortunes of the regiment to chronicle.

It became Fusiliers in 1843, and, on passing from the service of the East India Company to that of the Queen, came into the Army List as the 102nd Foot (Royal Madras Fusiliers). The transference was formally made known in India by Royal Proclamation, the terms of which found little favour with the troops concerned. When the Birthday Parade was held at Bangalore on 24th May, 1859, the Madras Fusiliers did not join in the cheering. Next day the commanding officer explained, in a letter to the authorities, that the men declared that "they were Englishmen, but had been transferred like guns and bullocks to the Queen, and they might be transferred again to the Americans to-morrow. They were no longer men, but cattle or goods transferable without their consent obtained, or even asked for, from one party to another." Eventually, no less than 298 members of the corps took their discharge; but some of these re-enlisted in the British Army in England.

The title 1st Royal Dublin Fusiliers only dates from 1881, but the dépôt had then been established in Ireland for many years.

The illustrations include regimental trophies and scenes of interest; and a coloured plate shows the uniform of the Madras Fusiliers in 1857.

History of the East Surrey Regiment. By COLONEL H. W. PEARSE, D.S.O., and BRIGADIER-GENERAL H. S. SLOMAN, C.M.G., D.S.O. Vols. 2 and 3. (The Medici Society, Ltd.)

These two handsome volumes bring the history of the East Surrey Regiment forward through the great war to the year 1919, General Sloman having carried on the work of the late Colonel Pearse, who had collected most of the material.

The 1st Battalion of the regiment went to France in the British Expeditionary Force; the 2nd came from India to join the 28th Division, which fought on the western front before going to Salonika; of the two Territorial Battalions which went to India, one afterwards fought in Mesopotamia and the other served with the Aden field force; the 7th, 8th, 9th, 12th and 13th service battalions all fought in France and Belgium; and the 1st and 12th Battalions each had a short experience of the Italian front after the battles of Ypres, 1917. Even after the armistice, much remains to be told, for the 2nd Battalion was at once despatched to Turkey; the 1st took part in the closing operations of the north Russian expeditionary force; the 1/5th Battalion was concerned in the south Khurdistan operations before leaving Mesopotamia for home; and the 9th and 12th Battalions both served in the army of occupation in Germany.

To follow the fortunes of the regiment in so many theatres of war is no light task, if some sort of chronological sequence of events is to be presented and the threads of battalion interest preserved. The history is, indeed, well planned, and proves unexpectedly easy of reference considering that no index is provided.

The first chapter of Volume 2 records the pre-war history of the special reserve and territorial battalions. It is not easy to see why the writer should seek to trace the descent of the 1st Royal Surrey Militia from the Saxon "Fyrd." There is, of course, no historical connection. Many other errors which are to be found in this chapter might have been avoided by the exercise of greater discrimination and judgment and a more careful reference.

The early phases of the struggle on the western front offer, perhaps, more difficulties to the historian than do the later operations; but one would expect to find a better and more accurate account of the part played by the 1st battalion at what is called the battle of "Le Cateau," in 1914. Thereafter, the narrative, which touches nearly all the big battles in France and Belgium, is carefully told with such detail as the limits of space allow.

Of the illustrations, the panoramic views of Hill 60 on the Ypres front, and of the Struma Valley, are exceptionally good. The effort to show too many situations has made many of the maps far from clear.

Sixteenth, Seventeenth, Eighteenth and Nineteenth Battalions, The Manchester Regiment (1st City Brigade). A Record, 1914-1918. (Sherratt and Hughes.)

The record of these four battalions—Manchester's own—has been produced under the direction of the Manchester History Sub-Committee, civic pride combining with *esprit de corps* in the effort to complete the chronicles of all battalions of the Regiment.

Each of the four was a "Pals" Battalion, raised at the beginning of the war to form the original 90th Brigade of the 30th Division, which went to

France in November, 1915. Then the 19th Battalion was transferred in exchange for the 2nd Royal Scots Fusiliers of the 21st Brigade, which came in to the Division.

In the Battles of the Somme, 1916, and in the Battles of Arras and of Ypres, 1917, all these Manchester battalions were heavily engaged and suffered severe losses. The reduction of infantry brigades from four to three battalions in February, 1918, meant the disbandment of the 18th and 19th Manchesters. The 16th and 17th helped to bear the brunt of the German offensive in March, when their stout resistance west of St. Quentin resulted in something like annihilation. After serving as a training cadre for the benefit of American troops, the 17th were disbanded in July; the 16th came home to refit and recruit before going out again with the 14th Division to fight in Belgium at the beginning of the British advance to victory.

The story of each Battalion is told separately, which involves a certain amount of repetition; but attention is rightly concentrated upon the heavy fighting, the description of the quieter periods being much condensed. Much use has been made of company and battalion reports, despite a regrettable tendency to rely upon Conan Doyle for the narrative of events. A list of decorations won and a Roll of Honour is appended in the case of each Battalion.

The maps are designed to give a general idea of the battle areas, and no plans showing situations in detail are included.

The War History of the 1st Battalion Queen's Westminster Rifles, 1914-18. By MAJOR J. Q. HENRIQUES, T.D. (The Medici Society, Ltd.).

The Queen's Westminsters went out to France at the beginning of November, 1914, being one of the selected Territorial battalions despatched in response to the insistent requests for reinforcements. Much experience of active trench warfare was gained with the 6th Division and then, in February, 1916, the battalion went to the 56th (1st London) Division, which was formed at this time.

On 1st July, 1916, the day of the opening of the British offensive, the 56th was one of those divisions which attacked the German salient at Gommecourt. In this—their first big fight—the Queen's Westminsters did gallant work and lost 600 men out of a strength of 750. Thereafter the Battalion bore its part in the long-drawn-out Battles of the Somme, and in the fighting on the Western Front during the following years, up to the end of the war.

This is an honourable record such as befits one of the crack Territorial corps of London, and the Queen's Westminsters are well served by their historian, who was a company commander at the beginning of the war, and afterwards became second in command of the Battalion. Although he follows closely the fortunes of the unit in and out of action, Major Henriques has managed to give due prominence to all the operations in which the Queen's Westminsters were heavily engaged—and this within the compass of less than 300 pages, for the book commences with a short description of the origin of the Regiment and its history up to the outbreak of hostilities. To write the story of a single battalion is a comparatively straightforward task, but this attractive and well-balanced book is a worthy achievement. The maps are admirably drawn, and it is an excellent idea to make the general map do duty as an end-paper. There are many interesting illustrations of scenes in or near the front line, and among the appendices is a complete Roll of Honour.

W. M.

La Bataille Décisive. By LIEUTENANT DE VAISSEAU D'HALEWYN, Ouvrage publié sous la direction du service historique de l'état-major de la marine. (Paris, 1923.)

This is a curious but a valuable study. Its purpose is naval, but the argument is based chiefly on the tactics of battles fought on land. A considerable part of the book is devoted to a study of Cannæ; and, though Trafalgar and Tsushima figure among the subsidiary illustrations, the author throughout prefers to draw his examples from the land. Inasmuch as he concerns himself only with decisive battles, this may be thought very natural, and, perhaps, inevitable; for while the history of warfare exhibits no lack of decisive battles fought on land, the number of truly decisive battles at sea—at any rate, since the advent of the great gun—can be numbered almost on the fingers. Indeed, with the one possible exception of Rodney's victory of 12th April, 1782, there was no such battle fought between Barfleur in 1692 and the Nile in 1798. Such decisive affairs as did take place within that period, including Passaro in 1718, and the victories of Anson, Boscawen and Hawke, partook rather of the nature of a chase than of a stand-up fight between forces approximately equal; and little tactical doctrine is in consequence to be drawn from them.

The author specifically avoids the claim "d'avoir fait quelque chose de définitif." His hope, rather, is that he has made to the discussion, which is always going on, a contribution which may prove suggestive. His hope will be held to be justified, for his treatise is suggestive in a very high degree. He shows by his examples that the same essential principles underlie all battles both by land and sea; that the successful commander will first "fix" (*fixer*) his enemy—that is, will so dispose his own forces as to take from his enemy all freedom of movement—and will then, after the requisite preparation, launch a concentrated attack on a chosen part of the enemy's formation. In this way he may expect to produce a condition in which the enemy no longer sees any hope of victory; so that if, having lost his "will to win," he does not succeed in escaping, he will be destroyed. The production of this condition was termed by Napoleon the "*événement*," a word which is, perhaps, best rendered in English by "decision."

The study of the decisive battle resolves itself, therefore, into a study of how to produce the *événement*, and, as a means to this end, how to "fix" the enemy's forces.

No one will be inclined to dispute the soundness of this doctrine; but, in spite of the fact that decisive battles at sea have been few and far between, many may think that it would have been preferable to illustrate the subject also by examples drawn from the sea. By going back to the XVIIth century a quite adequate number of decisive battles might have been found, especially in the wars between ourselves and the Dutch; but, apart from this, it is an axiom of all time that we stand to learn more from our failures than from our successes. The battles at sea, both in the XVIIth and XVIIIth centuries, exhibit plenty of instances of attempts to "fix" the enemy, commonly evident in the "refusal" or "containing" of a part of his line and all of them, probably without exception, show an attempt at concentration. The history of sea tactics during this long period may, indeed, be said to resolve itself into a search for an effective method of concentration, of developing a fire locally superior to any answer that could be made. Relatively little concerning the theory which underlay these experiments has survived; but we have, in the consecutive editions of the fighting instructions, and in the records of the tactical movements made in battle, plenty of material from which to deduce how progress was painfully made by trial and error. It may, therefore, be suggested

that the theory of the naval battle should be studied in the light of naval battles, not necessarily only successful battles, of the past. The application of the experience of the land to the sea is illuminating, but it may be doubted whether the land can supply instances of the peculiar difficulties which frustrated the efforts of whole generations of seamen.

Probably the attraction which Cannæ had for Lieut. d'Halewyn was the swiftness of the manœuvre which produced the decision. Owing to the great freedom of movement of a fleet in the open sea, it has always been particularly difficult to "fix" it, or to maintain a "fix" for any great length of time. The decisive manœuvre at sea must, therefore, be made with great suddenness, at as high a speed as possible, and must follow immediately on the "fix," in order to leave the enemy no opportunity to extricate himself. These conditions were fulfilled to an extreme degree at Cannæ, and, of sea battles, at Trafalgar. The author argues that Rashdestvensky "fixed" himself at Tsushima, and that the result followed inevitably. The question in relation to that battle will probably bear further investigation; but this at least is of importance, that Tsushima seems to have inspired the idea that a fleet on the exterior necessarily "fixed" one on the interior circle. Scheer at Jutland showed that this was not necessarily so, though the movement which he made to extricate himself was limited entirely to that purpose, and had no offensive significance. He never, in his turn, attempted to take all initiative from his enemy, and was not, in consequence, in a position to aim at a decision.

Scheer's movement of extrication has, however, this in common with a movement designed to be decisive, that it had to be made unexpectedly, and, consequently, had to be practised beforehand. This brings us to the very important consideration of how far a naval battle can be staged *a priori*—a thing which in itself is extremely desirable, in that it minimises the number of signals to be made in action. The author's ideal is that the Commander-in-Chief should be able, by orders explained and issued before the joining of battle, to lay down the main lines on which he will act; that he should beware of "preconceived" plans, by which he means that it is dangerous to count on what your enemy will do; and, finally, that he should, for the sake of flexibility, make as great a devolution of authority as possible. These principles are perennial. A new reading of tactical naval history by their light would be both interesting and instructive.

L. G. C. L.

Académie de Marine. Communications et Mémoires. Tome 1er, 1922. Paris, 1923.

The appearance of this first number of a new periodical "gives us furiously to think." There are in this country a great many men, intelligent and patriotic men, who are saying freely that the navy is a back number; that, as our first line of defence, it has been displaced from its old-standing pride of place by the air service; that, if we would avoid disaster in the future, we must economise many of the millions now being spent on the navy, and expend them instead on the air service. The question is a big one, and unfortunately in great part so highly technical, that the ordinary intelligent citizen is likely for a considerable time to remain ill-informed concerning it. And meanwhile, the danger is that he will be induced by superficial arguments to make up his mind in a wrong direction, and by his vote to give effect to his opinion.

Here is, not indeed an answer to the question, but a very weighty argument bearing directly on it. The French, if any nation, are not in the least likely to

underestimate the value of the air arm: they have never depended, to the same extent that we have done, on their navy, and yet in this volume we have the first fruits of a movement, deliberately undertaken by the most able man in the country, and launched with the highest official patronage, for the maintenance and development of the navy as being most essential to the national safety and wealth.

The Académie de Marine held its inaugural meeting on 28th October, 1921, with the President of the Republic in the chair. The inaugural address was delivered by M. Landry, formerly Minister of Marine, now President of the Académie de Marine. The list of those who were present, or joined the Académie as original members, discloses the names of nearly all those men whose work, in connection in any way with sea affairs, is best known and most highly esteemed.

M. Landry's admirable address explains the purpose of the Académie. The intention is to revive, with appropriate differences, the famous old Académie de Marine which was founded at Brest by Bigot de Morogues in 1752, and was forty-two years later wiped out by the Revolution. The differences, however, are significant. The new Académie is not designed to be a close corporation of naval officers, but to represent and to encourage a national movement. It is open alike to the navy and to the merchant service, and its educational work will be concerned with all sea interests, in the widest sense in which we have come of late years to define them. This is exemplified by its subdivision into sections: military, economic, historical, legislative and administrative, constructional, and navigational. The present publication represents the "journal," or "transactions" of the new society, and thus, though with important differences, takes its place beside the *Journal* of this Institution and the *Proceedings* of the U.S. Naval Institute.

The contents of this first number represent very fairly the several interests involved. M. Laubeuf contributes a long and interesting paper on "The Evolution of Naval Material," in which he traces development from 1891 to the present day, lamenting the extreme rapidity with which ships of war nowadays become obsolete. M. de la Roncière follows with a highly appropriate historical paper on the old Académie de Marine of 1752. Admiral Darrieus propounds a scheme for the maritime education of all Frenchmen, and makes suggestions the value of which is by no means confined to his own country. M. de la Roncière, in addition to his paper on the Académie of 1752, contributes also an essay on the battle of Velez Malaga, a subject which was recently illustrated in this *Journal*. Unfortunately he turns chiefly to the strategical interest of the campaign, which, though of great importance, was not particularly obscure; and he throws no new light on the tactics, an elucidation of which from French sources would be of primary interest. Captain Castex presents in "The Conduct of War: the G.Q.G. Maritime" another of those important studies of staffwork for which he is as well known perhaps in this country as in France. M. P. de Roussiers in "The present state of the Merchant Service," contributes a paper which will serve as a point of departure for future discussions not only on that service itself, but also on its relationship to the navy. The other papers, which are technical, some of them very highly so, cover the field of the Académie's activities so completely, that it may be said that the sphere of none of the sections mentioned in the presidential address is left unrepresented.

It is a pleasure to wish the Académie a long life and prosperity; and to add that if in the future issues of its "Communications et Mémoires" it is able to maintain the standard of interest reached in this first number, it will be making an important contribution to the literature of the sea.

L. G. C. L.

Over the Balkans and South Russia. Being the history of No. 47 Squadron, Royal Air Force. By H. A. JONES, M.C. (Edward Arnold.)

The author is fully justified in giving this book a more general and more attractive title than "The History of No. 47 Squadron"; for, though the doings of that squadron are the thread running through the story, he has written far more than a mere regimental history interesting only to members of the unit. He has, in fact, with very considerable skill, depicted life in the Salonica theatre of war, the nature of the country and operations, and the final triumph. The failure to destroy the "Goeben" when she got ashore, and the very successful bombing of the Bulgars in retreat, which he narrates, are incidents on which it is desirable that all of us should be informed. Mr. Jones attributes the small damage done to the "Goeben" to the bombs used being small, only 65 or 112 lb. weight, and to heavy anti-aircraft fire, and the presence of enemy planes making correct aiming difficult; these last named handicaps will, no doubt, always affect aerial operations.

We have become somewhat critical of military history since the war. The works compiled by eminent civilian writers in their studies, largely out of their inner consciousness, and their uninformed criticism, will no longer pass muster as the real thing. Mr. Jones, as a participator in the events, a pleasing writer, with an apprenticeship in the Historical Section of the Committee of Imperial Defence behind him, brings every necessary qualification to the work. He tells us authoritatively of the varied duties of pilots and observers, how they were trained for them and how they performed them. We can believe him when he states that "the casualties of the autumn (of 1917) were largely due to the enemy's superior machines. The personal prestige set up by our pilots and observers did not always balance against the better equipment." Then also he can show us from the inside the cheeriness and the *joie de vivre* of the young Briton in all circumstances; the rejoicings at the opening of a bar, constructed of boxes with much secrecy and mystery by the mess secretary; the surreptitious joy-riding with nurses, after introductions obtained by incredible impudence; the growing of beards by the local Royal Naval Air Service to distinguish themselves from their land brethren. The chivalry in the dealings with the opposing airmen is very well brought out.

Then, at the end of the story, a composite squadron is formed to go to South Russia and co-operate with General Denikin, and we get a glimpse of the spirit animating its members: they will not volunteer for the Instructional Mission as they "had gone to Russia to fight."

There are maps and a number of good photographs and aeroplane photographs.
J. E. E.

The Empire at War. Vol. II. Edited by SIR CHARLES LUCAS. (Oxford University Press.)

This volume, which is the work of numerous writers, gives a most graphic description of the war effort of Canada, Newfoundland, the British West Indies, and of British residents outside the Empire, notably from Argentina and the river Plate. Not only does it deal in detail with the military record of the various contingents, but it gives most interesting political and economic information which has not hitherto been made public elsewhere. It also shows how the inherent military weakness of a scattered Empire is compensated for in a World War by the diversity of its products, which cannot be available for a nation concentrated in one Continent. Food and munitions from Canada, pit props from Newfoundland, and rum, sugar, and mahogany for aeroplane propellers from the West Indies, are only a tithe of the numerous requirements provided from our own soil.

Almost three-fifths of this volume is devoted to Canada, and it is interesting to note that out of the 365,000 Canadians who up to 31st March, 1918, served overseas, 172,000 had been born in the United Kingdom, 147,000 were Canadians of British descent, and only 16,000 out of a population of 2 million were of French descent.

The editor is, however, careful to point out that this result could not in any way be attributed to the influence of Sir Wilfred Laurier, who, although "a jealous guardian of Canadian autonomy, rather than an active promoter of Empire partnership," did everything possible to support Sir Robert Borden.

In spite of her enormous financial efforts, that Canada emerged from the war in a relatively sound financial condition is clearly explained by Sir Thomas White. "Britain lent us the money in London to pay all our military expenses overseas. We repaid Britain by moneys placed to her credit in Canada. She used these credits to purchase munitions, wheat, flour and other Canadian products. In a word, we paid the cost of our military operations by our production during the war." Thus it appears that the burden on the Home Country of purchasing her food supplies and other requirements abroad was not counterbalanced as in peace by the export of manufactured articles, but by military and with no corresponding financial advantage.

The psychological effect of the war is described by the editor in his general summary: "Everywhere the war had a tendency to equalise in all directions class and class, race and race, man and woman. Everywhere it tended to accelerate and expand movements which were either in embryo or in the youth of active life before the war. The self-governing dominion became more self-governing; the patriot was more patriotic; the intransigent nationalist, the pacifist fanatic, were the same as ever, only more so." The result, as we know, was that the war brought greater changes into every branch of our domestic life than could have been achieved by the most successful revolution.

From a purely military point of view there is one statement that seems to deserve special comment "The name of Passchendaele still arouses bitter memories in Canada, for here, amid indescribable miseries, seemingly to win part of a ridge which a few months later was given up almost without fighting, 16,000 Canadian casualties were incurred." No doubt to the average private soldier on the Western Front a comparison between ground gained and casualties incurred provided the most obvious test of success; but those who lost relatives or comrades at Passchendaele may take comfort from Ludendorff, who ascribes to this battle the permanent weakening of the *morale* of the German army; and Lord Haig has given it as his definite opinion that the victories of 1918 could not have been gained if the battles of 1917 had not taken place.

Space does not permit of a more detailed review of the military record of each contingent, but the object of the book, which is stated to be an "attempt to give to each part of the overseas Empire its own special setting in the War" appears to have been admirably fulfilled.

M. W.

Questions d'état-major. Vol. I. By CAPITAINE DE VAISSEAU CASTEX.
(L. Fournier.)

Captain Castex is best known to English readers of naval literature by his book upon the submarine campaign. Unfortunately, their attention was directed to it by an attack upon the book and its conclusions made by Lord Leigh of Fareham, during the discussions of the Washington Conference; more unfortunately still

the French diplomats, who resented Lord Leigh's remarks, knew as little of the book as he did, and their rejoinder was not to the point. The result was that by far the most suggestive and thoughtful work on submarine war that has yet appeared became the target of a great deal of irrelevant criticism. It is to be hoped that the book under review will escape a like fate.

Whether he is discussing the battle of Lepanto, or the strategy of the high naval command in the eighteenth century, or the principles of submarine war, Captain Castex's method is always the same. Certain abstract principles of thought, or some quite simple human characteristic, is, to him, the key to every great operation of war; and his first task is always to disengage it from the mass of details in which history records the event he seeks to analyse. He has applied this system with rigorous logic to his present subject.

Any operation of war begins with the decision of a commander; and a staff is the mechanism through which that decision takes effect. An operation is possible if it is *desired*; if the circumstances in which it is to be made are *known*; and if the means of putting it into effect are *available*. These abstract data are the skeleton framework of a general staff. The operations division springs from the desire to carry out an act of war; the intelligence division from the knowledge of the circumstances, and an organisation section from the assembling of the available means. A proper staff should never have any other divisions than these: if it does, its organisation is tainted with a vicious system of thought.

But, as the high command executes its plans by means of men, ships, engines and guns, these also have to be grouped appropriately. This grouping, according to Captain Castex, must always be administrative. The staff must be concerned only with plans and their execution; those who are responsible for material cannot be part of it, nor should their duties ever be confounded with staff duties proper. Attempts have been made to combine the two; as, for instance, when aeronautic and submarine sections were added to the French naval staff, and always wrongly: the resulting confusion was the outcome of slovenly thinking when the arrangement was made. "This pseudo staff was concerned with tiny details, routine work and unimportant concerns. All its time was devoted to them, and none was available for big problems. . . . This state of things was much regretted, although in point of fact it was inevitable."

The book is, therefore, an attempt to apply these abstract principles of reason to the problems of a general staff. Whether or not one agrees with the conclusions, or even the premisses, it has to be admitted that the general argument is as forceful as it is clearly expressed.

It is essentially the province of a staff to translate the decisions of a fleet commander into orders. Captain Castex contends that these should always be drawn up in sections corresponding to the divisions of the staff which prepare them. First must come a summary of what is known of the opposing forces, and the situation (intelligence); next the object to be pursued (operations); and finally the means of carrying it out (organisation). Captain Castex urges that all orders must be fitted into this moulding before they are issued; and suggests that they should be drafted on forms in which the essential headings have been printed beforehand. By this means the drafting officer will be held more closely to his work and some safeguard will be provided against omissions. The author applies his method to certain concrete cases; and redrafts the orders given by Farragut at Mobile, by Admiral Ito at Yung Ching (1895); and by the French commander in chief in the Adriatic (1914), according to his own model. Nobody can doubt that they are very much improved by the process.

Captain Castex's book is, however, in no sense the work of a theorist. Quite

the contrary: the greater part of it is devoted to a detailed analysis of the administrative orders and decrees which have built up the French naval staff. Throughout, the author sees behind them the operation of a general law: the separation of administrative and executive duties; but he never omits relevant facts, and he faces them fairly.

A book so suggestive, and so closely reasoned, cannot be fully discussed within the limits of a review; but as Captain Castex would probably be the last to claim that his judgment was final, some note should be made of points which seem open to argument.

In the first place it is impossible to agree that his method of dividing a general staff is inevitable. It is true that any operation of war depends on a decision, in the first place, and the mechanism which it sets in motion in the second. But, by our way of thinking, the decision belongs to the high command alone, and the division of the staff, which Captain Castex regards as its derivative, is surely none at all. Nor is it easy to understand why he divides the bureau of operations from the bureau of organisation. A more rational analysis would be to divide a staff into two sections: intelligence and operations; and to treat the organisation department as a consultative organ of *liaison* between operations section and the administrative services.

His chapter upon orders does not lend itself so easily to basic criticism; for whether the decision to carry out an operation corresponds to a section of the staff (as the author thinks), or to the high command (as we think), it is beyond all doubt that it must be expressed at the head of any order, important or trivial. On the other hand we could have wished that Captain Castex had been a little more empirical in his analysis of operation orders. He has throughout discussed orders issued by a commander who had the initiative; and has never once examined an operation order drawn up to meet a situation *as it develops*. To give a known instance. During the fortnight preceding Jutland the British Admiralty knew that a large number of submarines were leaving the German harbours for an unrevealed purpose. In consequence of this, they warned the commander-in-chief from time to time of the U-boats which they knew were at sea. When, after days of waiting, it was realised that the high seas fleet was likely to leave harbour, the Admiralty told the commander-in-chief that he was to put to sea and concentrate to the east of the Long Forties; with the result that the whole of our available forces steamed through the North Sea with no defined military object in view; nor could any be given them until a few fragmentary intercepts showed Admiral Jellicoe that the enemy was actually at sea and had got into contact with his advanced forces. Would Captain Castex argue that these periodical bulletins, followed by an order to proceed to a known rendezvous, divided themselves into his inevitable compartments, or that they could be made to do so? To us, they appear as the mere means of setting preventive measures in motion; and if the difference between orders issued for a known, preconceived purpose, and orders made out as a mere precaution against a state of things which may, or may not, come about, is merely one of form and not of essence, then at least that difference is so remarkable that the author would have done well to give it his attention.

A. C. B.

Stray Recollections. By MAJOR-GENERAL SIR C. E. CALLWELL, K.C.B.
(Arnold and Co.)

In a previous book the author has already recorded for us some of the incidents of his concluding years of army service, and in these two volumes he gives us

something of the nature of an autobiography, enlivened by many good stories, told with admirable humour. General Callwell joined the Royal Regiment at a fortunate period for the gathering of professional experience, since he was posted, on leaving the "shop," to a field battery in India, reaching that country in time to take part in the concluding phase of the second Afghan War, on return from which he proceeded to Natal with the Indian contingent, sent thither by reason of the unfortunate outcome of the Boer War of 1881. The remarkable improvement in the British army of to-day, consequent upon its preparation for participation in a great European war, has led some of those who have recently published their recollections to describe the army of the "seventies" or "eighties" of the last century as one of no account: a military body which had made no serious advance since the days of the Crimea. Sir Charles Callwell tells us that when he joined the army in March, 1879, "cavalry regiments and infantry battalions were still practically run by the adjutant," and that "junior officers, except gunners, were allowed no responsibility whatever." One may make allowance for the fact that a gunner subaltern of less than nine months' service was hardly in a position to know much of the methods of the other arms of the service, but this picture is certainly overcoloured; the Afghan and Zulu campaigns—especially the latter—taught the army much; *ex Africa semper aliquid novi*, and then, in a later campaign in that country, the cavalry and infantry, and possibly even gunners, learnt a great deal that bore fruit in 1914-1918. Further, about the period General Callwell mentions there were commanding officers, like the late John North Crelock, who insisted upon the due delegation of responsibility and commanded their battalions, not through their adjutants, but through their company officers.

Having already at the very outset of his career been so fortunate as to see service in two Continents, Callwell came home for a season, and then did a second turn of service in India, during which he passed for the Staff College, and on leaving was attached to the Intelligence Department, remaining there until 1892, whereafter he served at home and at Malta in the Garrison Artillery until the South African War broke out and his company was sent to join the Natal army. His recollections of these operations are in the highest degree interesting and may be read with advantage in conjunction with the "Life of General Buller" recently published. When the Natal army was broken up, General Callwell was given the command of a column operating chiefly in Cape Colony, and on the war coming to an end he was speedily reappointed to the Intelligence Department, remaining there until, in 1907, he went on half-pay, retiring from the service some two years later and taking to journalism very much to the benefit of the military branch of the Fourth Estate.

The concluding chapter of this very readable book contains some haphazard memoirs of the war-time during which Sir Charles went back to the War Office, and he tells us of many of the men of the day, soldiers and civilians, with whom he came in contact, and has some amusing stories of our legislators and their quaint ways. Incidentally, the author has a good deal to say about Lord Kitchener, and he probably gives us a more realistic and lifelike portrait of that great Englishman than is to be found in the writings of others who have made more elaborate attempts at such portraiture.

These two volumes of "Stray Recollections" are distinguished by much of the humour discoverable in General Sir Charles Callwell's other books; he has many good stories, most of them new, and he tells them well; he has known and served with very many of the soldiers whose names have been familiar to us during many years—from the Duke of Cambridge onwards; he has been a very keen observer and he has remembered all that he has seen and heard during the forty

odd years that he was a soldier and did his share in preparing the army for the supreme test from which it has recently so triumphantly emerged.

H. C. W.

The Life of General the Rt. Hon. Sir Redvers Buller, V.C., G.C.B., G.C.M.G. By COLONEL C. H. MELVILLE, C.M.G. (Edward Arnold & Co.)

To the younger soldiers of the present generation Sir Redvers Buller is little more than a name, and it is mainly among those on the retired list of the army who remember him as one who impressed himself very deeply on their minds in their early days and who failed to redeem his promise when placed in high command. Colonel Melville invites our attention to another side of General Buller's military character, and when all due allowance is made for the natural enthusiasm of the biographer, we rise from the study of these two carefully written volumes with a feeling of increased respect for his hero. We are led to realise that he was a really great soldier—not merely a fighter; that he was a thinker and had made a deep study of his profession; and that if, when put to the supreme test of high command, he made many mistakes, it may be doubted whether any other general officer, placed in similar circumstances, would have done any better.

In his early days of soldiering, in his professional upbringing, Buller may be counted among the fortunate men of the army of his day; equally as a young regimental officer and as a budding staff officer he sat at good men's feet—his first colonel was General Hawley, a regimental commander who in the delegation and distribution of responsibility to his subordinates was far in advance of his time; while as a young staff officer he was lucky in coming in-contact with Lord Wolseley, already a rising man and attracting to him a small and devoted and gifted body of real professional soldiers.

Gazetted to the 60th Rifles, young Buller joined the 1st Battalion of his regiment in India early in 1859, but sailed with it to China within a year. He never again served in India, and there can be little question but that this was a serious deprivation, since, in the latter part of the last century, India was a better and a wider training ground for soldiers and their leaders than was to be found in any other of the British dominions. In China, his first campaign, Buller showed his qualities of leadership and his ability of inspiring something like adoration among the men who so readily followed him. Transferred to another battalion of the 60th serving in Canada, Buller came under Hawley, and learned much from him and from the exceptional conditions of service which then obtained, so that, when, having been promoted captain, he returned to Canada with the 1st Battalion, he made a name for himself and came prominently to the notice of Lord Wolseley in the Red River Expedition of 1869. Thereafter Buller served in Ashanti, in the Kaffir and Zulu wars, and in the Boer war of 1881, where he gained the Victoria Cross; while in the Egyptian Campaigns of 1882 and 1884 he served in high positions on the staff and added greatly to his reputation as an admirable subordinate—he had yet to show what he could do in a position of independent command.

During the five years that followed General Buller occupied in succession the two highest positions on the staff of the British Army—those of Quartermaster-General and Adjutant-General, while for some months he was specially employed as Under-Secretary for Ireland. In all these varied posts he did admirable work, and his creation of the Army Service Corps and the welding of it into an integral part of the army were achievements of the very first importance.

Then came the outbreak of the war with the Boer Republics and the nomination of Buller to the command of the Expeditionary Force. The com-

mander designate knew well his own limitations, and it is clear that he had doubts as to whether he ought to accept, knowing that he had never held an independent command, feeling that during recent years he had enjoyed few opportunities for the handling of troops, and believing, as he did, that he was at his best as a subordinate. The objections he put forward were overruled, and he accepted the task, the greatness of which he realised; while he was convinced that, sooner or later, our forces would be opposed by those of both republics—a contingency which the government declined to consider and against which they had made no serious preparations. The difficulties which confronted General Buller at the outset and on his landing in South Africa were so immense that there was assuredly no reason why Colonel Melville should have overstated them; for certainly no soldier who served in the war will agree with the suggestion he seriously puts forward that a very large percentage of the infantry battalions were "Colonels' battalions," "Adjutants' battalions," even "Sergeant-Majors' battalions," and *not* battalions in which captains actually commanded their companies and juniors their smaller units.

The story of the Natal campaign is well and impartially told, and no reader will withhold his fullest sympathy with and admiration for the commander who bravely faced almost overpowering difficulties. That people at home were prone to overestimate these, and to misjudge him, must be admitted; but equally must it be said that the campaign as a whole had opened badly. Our troops had almost everywhere been checked or had suffered defeat, while the reasons for our ill-success were neither readily apparent nor lucidly explained.

A perusal of this life convinces us that Redvers Buller was a great leader, that he only just missed being a great general, while he possessed in full measure the qualities which in combination are rare enough, but which we like to regard as peculiarly British: he was brave, he was loyal, like Raleigh, "he was of a great heart"; he was dogged and determined; and he had the supreme British gift for getting the last ounce out of his subordinates while retaining their unflinching love and devotion.

H. C. W.



Royal United Service Institution.

THE NINETY-THIRD ANNIVERSARY MEETING WAS HELD ON
TUESDAY, MARCH 4th, 1924.

BRIGADIER-GENERAL THE EARL OF LUCAN, K.B.E., C.B., T.D., A.D.C.
in the Chair.

THE SECRETARY (LIEUT.-COL. SIR A. LEETHAM, C.M.G.): My Lords and Gentlemen, I regret to have to inform you that Admiral Sir Reginald Tupper has recently undergone a rather severe operation and is not able to be here to-day. Field-Marshal Sir William Roberston should have occupied the chair, but unfortunately he is engaged elsewhere on important business. It is always the custom for the senior Member of the Council who has passed the chair to preside in the event of there being no Vice-President available, and Lord Lucan presides at this meeting.

THE CHAIRMAN: The Secretary will read the Notice convening the meeting.

THE SECRETARY read the Notice.

ANNUAL REPORT FOR 1923.

COUNCIL.

Rear-Admiral H. W. Richmond, C.B., Captain the Hon. R. A. R. P. E. Erle-Drax, D.S.O., R.N., and Major-General Sir W. H. Anderson, K.C.B. (having proceeded on Foreign Service), have vacated their seats on the Council, which have been filled by the appointment of Vice-Admiral Sir H. H. Bruce, K.C.B., M.V.O., Captain C. M. Staveley, C.M.G., R.N., Naval Assistant to Admiral Commanding Coast Guard and Reserves, and Major-General H. F. Thuillier, C.B., C.M.G., R.E., respectively.

Major-General Sir J. T. Burnett-Stuart, K.B.E., C.B., C.M.G., D.S.O., Director of Military Operations and Intelligence, has been appointed by the War Office as their official representative on the Council vice Colonel O. H. L. Nicholson, C.M.G. D.S.O., West Yorkshire Regiment.

Captain Lord Tredegar, O.B.E., F.S.A., R.N.V.R., has been appointed an additional member of the Council as the representative of the Royal Naval Volunteer Reserve.

(Chapter IV., Para. 9, of the Bye-Laws.)

The following Members of the Council, having completed three years' service, retire :—

Lieutenant-General Sir Noel Birch, K.C.B., K.C.M.G.
 Major-General E. T. Dickson.
 Major-General Sir A. Paris, K.C.B.
 Captain W. F. Caborne, C.B., R.D., R.N.R.
 Colonel Lord Ampthill, G.S.C.I., G.C.I.E.
 Brigadier-General The Earl of Lucan, K.B.E., C.B., T.D., A.D.C.
 Colonel The Duke of Northumberland, C.B.E., M.V.O.
 Colonel C. W. Trotter, C.B., T.D.

The following are the Candidates nominated for the vacancies :—

Regular Army (2 Vacancies).

Lieutenant-General Sir Noel Birch, K.C.B., K.C.M.G., Master-General of the Ordnance.
 Lieutenant-General Sir P. W. Chetwode, Bart., K.C.B., K.C.M.G., D.S.O., G.O.C.-in-C., Aldershot.
 Major-General E. T. Dickson.

Royal Marines (1 Vacancy).

Major-General H. D. Farquharson, C.M.G., R.M.
 Major-General Sir A. Paris, K.C.B.

Royal Naval Reserve (1 Vacancy).

Captain W. F. Caborne, C.B., R.D.

Captain S. M. Day, C.B., D.S.O., R.D., A.D.C.

Militia (1 Vacancy).

Colonel Lord Amphill, G.C.S.I., G.C.I.E.

Territorial Army (3 Vacancies).

Brigadier-General The Earl of Lucan, K.B.E., C.B., T.D., A.D.C.

Colonel The Duke of Northumberland, C.B.E., M.V.O.

Colonel C. W. Trotter, C.B., T.D.

MEMBERSHIP.

The Council beg to report that during the past year 487 Officers joined the Institution (against 440 in 1922). There were 191 withdrawals and 82 deaths (of which 35 were Life Members), making an increase on the year of 214. The Council trust that Members will do their utmost to introduce new Members during the current year.

The details of Members joining are as follows :—

Regular Army (all arms)	..	..	..	..	..	..	351
Royal Air Force	..	..	..	..	..	..	33
Royal Navy	..	..	..	..	..	..	46
Territorial Army (including Yeomanry)	..	..	..	..	..	..	24
Royal Naval Reserve	..	..	..	..	..	..	18
Royal Marines	..	..	..	..	..	..	6
Militia	..	..	..	..	..	..	5
Overseas Forces	..	..	..	..	..	..	4
Total	..	..	..	..	..	..	487

The total number of Members on December 31st was 5,671.

The detailed list of the various services in which Members on the active list are serving has recently been revised, and records the following :—

Regular Infantry 699, Indian Army 358, Royal Navy 334, Royal Artillery 313, Royal Engineers 180, Royal Air Force 116, Guards 87, Territorial Army 79, Departmental Corps 74, Royal Marines 54, Cavalry 53, Royal Naval Reserve 29, Overseas Forces 18.

The letter which was addressed by the Secretary to the various Mess Presidents throughout the Services has resulted in obtaining 154 new Members, and the Council desires to express their thanks to these Officers. The gratifying feature is the support which has been received from Serving Officers of the Royal Artillery.

FINANCE.

It will be seen by the Annual Accounts that the year's working has given a balance debit of £445 10s. 6d., which is a considerable improvement on the previous year, when it amounted to £1,218 15s. 2d., which is entirely due to taxation and rates. The invested funds amount to £18,992 16s. 3d., which is the market value on such investments in the Stock Exchange Official Price List, December 31st, 1923.

During the year a great effort was made to obtain relief from rating as is the case with similar Royal Societies, and although the City of Westminster Council were very sympathetic, the application failed; it is hoped, however, that when the Quinquennial Valuation takes place in 1925 that some reduction may be obtained.

The importance of an increased membership cannot be too strictly urged.

THE JOURNAL.

The quarterly publication of the JOURNAL has been continued up to date, but, owing to the continued high cost of production and in spite of a certain decrease in the postage rates, it has not been found possible to expand the JOURNAL beyond a limit of 208 pages.

Two years ago the conduct of the outside sale of the JOURNAL was taken over by the Institution; this has proved of very considerable financial advantage to the funds of the Institution. During the year under review the sales amounted to £352 18s. 7d.

The thanks of the Institution are due to the following writers and lecturers for papers contributed and lectures delivered by them:—Captain E. Altham, C.B., R.N.; "Assaye Lines"; Lieutenant-Colonel B. G. Baker, D.S.O.; Brevet Lieutenant-Colonel R. H. Beadon, C.B.E.; Major-General W. D. Bird, C.B., C.M.G., D.S.O.; Captain A. Blair; "Bogwheel"; Captain W. F. Caborne, C.B., R.D.; Major R. Chenevix-Trench, O.B.E., M.C.; the late Major T. E. Compton; Lieutenant-Colonel R. B. Crosse, D.S.O.; Captain S. M. Day, C.B., D.S.O.; Major R. Evans, M.C.; "Ex-Staff Officer"; Lieutenant-Colonel H. M. Farmar, C.M.G., D.S.O.; C. Ernest Fayle, Esq.; "G.B."; "G.G.A.E."; Lieutenant-General Sir A. Haldane, G.C.M.G., K.C.B., D.S.O.; Lieutenant E. A. James; L. G. Carr Laughton, Esq.; Brigadier-General W. R. Ludlow, C.B., V.D., T.D.; Major E. R. Macpherson, O.B.E.; "Meccano"; Lieutenant-General Sir H. S. G. Miles, G.C.B., G.C.M.G., G.B.E., C.V.O.; Rear-Admiral H. W. Richmond, C.B.; Field-Marshal Sir W. R. Robertson, Bt., G.C.B., G.C.M.G., K.C.V.O., D.S.O.; Lieutenant G. C. Steele, V.C., R.N.; Admiral-of-the-Fleet Sir F. C. D. Sturdee, Bt., G.C.B., K.C.M.G., C.V.O.; Captain C. L. Tebbutt, M.C.; Admiral Sir R. G. O. Tupper, G.B.E., K.C.B., C.V.O.; Wing Commander H. M. Stanley-Turner; Lieutenant-General F. H. Tyrrell; Captain A. W. G. Wildey,

M.C.; Captain R. J. Wilkinson, O.B.E.; Brevet-Major F. V. B. Wits, C.B.E., D.S.O., M.C.; "X," and Colonel The Right Hon. Lord Amptill, G.C.S.I., G.C.I.E.

The exchange of the JOURNAL with Foreign Government publications, and with many Societies in this and in other countries, has been continued so far as this has been possible.

During the year there has been a change in the editorship of the JOURNAL, the place of Colonel H. C. Wyll, C.B., who was appointed in September 1913, and whose period of engagement ceased in November 1923, having been assumed by Lieutenant-Commander A. Colquhoun Bell, R.N.

The Council desire to place on record the excellent services rendered by Colonel H. C. Wyll during the period he has been Editor of the JOURNAL.

LIBRARY.

The number of books added to the Library during the past year was 330, which included the following gifts:—By Major-General W. H. Greenly, a large number of books dealing with the History and Tactics of Cavalry; by Lady Wilson, a number of books from the Library of the late Field-Marshal Sir H. H. Wilson, Bt., G.C.B., D.S.O., M.P.; by Major-General Sir F. R. Bingham, K.C.M.G., C.B., a number of German books dealing with the late war and the German Army; by Lieutenant-Colonel Sir Arthur Leatham, C.M.G., F.S.A., 39 Volumes of the *Illustrated News*, which makes the Library set of this periodical complete; by Lady Corbett, books from the Library of the late Sir J. S. Corbett; by Major-General G. G. A. Egerton, C.B., a number of books on various military subjects; by Captain Sir George Nugent, Bart., a large number of letters and documents dealing with the various Commands held by Field-Marshal Sir G. Nugent, 1795–1814. These very valuable documents are being arranged and indexed by the Librarian, and will be placed in the Manuscript Room when completed.

The number of officers to make use of the Library in connection with the Staff College and Promotion Examinations has again increased. Considerable use has been made of the Card Index on technical subjects, as also of the Pamphlet Series. During the two months preceding the Examination for the Staff College over 800 books were issued on loan, as compared with 300 for the same period in 1921.

During the past year work has been commenced, in the Library, on seven additional Regimental Histories.

Great assistance and advice has again been given to the Librarian by Brigadier-General J. E. Edmonds, C.B., C.M.G. (Historical Section, War Cabinet), with regard to the purchase of books on the late war.

The number of books in the Library is now 25,747, and 7,385 maps.

The number of Members subscribing to the Lending Library during the past year was 316, compared with 255 in the previous year. The number of works issued on loan to Members was 3,664, as against 2,768 in 1922.

MUSEUM.

During the year there have been added 142 new exhibits, all of which have been duly catalogued, recorded in the JOURNAL and placed on exhibition in the building. The Council desire to express their thanks to the various donors for these valuable additions.

A number of exhibits were transferred from Kilmainham Hospital, Dublin, including an Arm Chest of the Order of St. John of Jerusalem dated 1699, a pair of Kettledrums of the Carlow Militia, a number of captured flags; also the wind-vane from the Ship Street Barracks, which has been placed at the top of the Institution's flag-staff. Lady Wilson presented five pieces of Sèvres Porcelain, given by the French Nation to the late Field-Marshal Sir Henry Wilson, Bart., G.C.B., D.S.O. Other interesting gifts include the Colours of the 5th Regiment of the Spanish Legion (1835), given by Lieutenant-Colonel G. P. Cosens, D.S.O.; an Officer's Uniform of the Royal Horse Guards of about 1760, given by that Regiment.

The total number of persons to pass through the turnstile amounted to 30,648, against 35,392 in 1922: this falling off in numbers is accounted for by the fact that there were many fewer visitors to London than in the previous year, and, doubtless, due to the financial position generally. The figures include a number of soldiers, sailors, boy scouts, etc., who were granted free admission, but does not account for the very considerable number of visitors introduced by Members personally. The total amount taken at the turnstile was £1,184 2s. 6d., against £1,332 16s. 6d. in 1922, being a decrease of £148 14s. 0d. The Museum Catalogue has now been reduced to 2s., and the sales amounted to £106 19s. 11d., which must be considered as satisfactory.

During the year, 46 schools were granted free admission to the Museum, and attendants were specially detailed to conduct these parties and explain the various exhibits.

The amount standing to the credit of the Museum Purchase Fund is £26 12s. 8d., and the Museum Committee hope that this fund will continue to receive support from the Members, especially those interested in the Museum.

ARTHUR LEETHAM, Lieut.-Colonel,

Secretary and
Chief Executive Officer.

February 1st, 1924.

DR.

BALANCE SHEET, 31ST DECEMBER, 1923.

CR.

	£	s.	d.	£	s.	d.
To Excess of Assets over Liabilities as at 31st December, 1922	95,410	0	0			
Add Additions to Museum Contents during the year	499	5	0			
	95,909	5	0			
Add Appreciation of Investments to Market Price as at 31st December, 23s. 10d.						
Profit on Sale ... £500	10	4	3			
War Loan 1929-47 ...						
	245	14	5			
	96,155	0	2			
Less Revenue Account—Deficit for the year ...	445	10	6			
	95,709	9	8			
" Sundry Creditors ...	767	7	2			
" Museum Purchase Fund ...	25	12	8			
" Leasehold Redemption Fund ...	2,981	13	1			
" Overdraft at Bank ...	379	6	0			
" Less Cash in hand ...	112	19	1			
	266	6	11			
				£99,451	9	6
By Leasehold Building—Whitehall, S.W.						
" Furniture, Museum Cases, etc., as at 31st December, 1922						
" Library, Books, Pictures, Maps, etc., as valued for Insurance						
" Museum Contents (excluding Loan Collection, £29,420) as at 31st December, 1922						
" Additions catalogued during the year						
	45,520	6	0			
	499	5	0			
	46,019	11	0			
" Investments (at Market Price, 31st December, 1923)—						
£2,520 0s. 0d. India 3½ % Stock ...	1,383	7	4			
£2,230 0s. 0d. India 3½ % Stock ...	1,243	0	0			
£1,471 8s. 6d. Nottingham Corpora-						
tion 3 % Stock	956	8	6			
£1,000 0s. 0d. 5 % War Loan, 1929-47 ...	1,000	0	0			
£6,883 19s. 0d. 4 % Funding Loan	5,823	14	8			
1960-90	5,761	12	8			
£7,502 3s. 0d. 3½ % Conversion Loan ...						
	10,311	3	2			
" Leasehold Redemption Fund—Investment Account (at Market Price, 31st December, 1923)—						
£1,738 18s. 1d. Ceylon 3 % Stock ...	1,373	14	9			
£2,043 12s. 4d. London County Council						
3 % Stock	1,307	16	4			
" Sundry Debtors						
	2,681	13	1			
	560	9	7			
	£99,451	9	6			

We have examined the above Balance Sheet with the Books and Vouchers and certify the same to be correct. All our requirements as Auditors have been complied with. We have verified the cash and the assets set out in the Balance Sheet and, subject to the Leasehold Redemption Fund being sufficient to provide for the satisfaction of the Lease, we are of opinion that the Balance Sheet is properly drawn up and correctly shows the position of the Royal United Service Institution on 31st December, 1923.

614, Fove Street, London, E.C.2, 21st January, 1924.

WILDE, FERGUSON-DAVEY, AND MILLER, Chartered Accountants
Auditors

CHESNEY MEMORIAL MEDAL FUND.

D.R.	CR.	31st DECEMBER, 1923.		
		£	s.	d.
1923.				
Jan. 1	To Balance, 31st December, 1922	53	5	6
Mar. 13	" Refund of Dominion Income Tax	1	18	4
June 4	" Dividend on £230 Bengal & North Western Railway Co. 3½ % Preference Stock	3	9	11
" 5	" Refund of Income Tax on Dividends	2	2	11
Dec. 3	" Dividend on £230 Bengal & North Western Railway Co. 3½ % Preference Stock	3	10	9
		£63	7	5

We hereby certify the above Account to be correct.

614, Fore Street, London, E.C.2.
21st January, 1924.WILDE, FERGUSON-DAVE, AND MILLER, Chartered Accountants,
Auditors.

TRENCH GASCOIGNE PRIZE FUND.

D.R.	CR.	31st DECEMBER, 1923.		
		£	s.	d.
1923.				
Jan. 1	To Balance, 31st December, 1922	75	7	10
" 19	" Dividend on £1,802 19s. 0d. North British Railway Co. 3 % Debenture Stock	5	14	10
May 18	" Proceeds of Fractions (19s.) on Conversion of 3 % Debenture Stock North British Railway Co. to 3 % Debenture Stock London & North Eastern Railway Co.	0	11	9
June 1	" Dividend on £1,000 0s. 5d. 5 % War Stock, 1929-47	2	10	0
July 5	" Refund of Income Tax on Dividends	15	1	5
July 3	" Dividend on £1,802 19s. 0d. London & North Eastern Railway Co. 3 % Debenture Stock	21	5	11
Dec. 1	" Dividend on £100 0s. 0d. 5 % War Stock, 1929-47	2	10	0
		£123	1	9

We hereby certify the above Account to be correct.

614, Fore Street, London, E.C.2.
25th January, 1924.WILDE, FERGUSON-DAVE, AND MILLER, Chartered Accountants,
Auditors.

BRACKENBURY MEMORIAL FUND.

DR.		CR.	
1923.		31st DECEMBER, 1923.	
Jan. 1	To Balance, 31st December, 1922	£	d.
June 1	" Dividend on £421 1s. 6d., 5 %	118 17	7
Dec. 1	Ditto	10 10	6
		10 10	0
1923.		1923.	
Feb. 8	By Hugh Rees, Ltd.—Books	£	d.
" 10	" Administration Fee, Royal United Service Institution	14	3
March 10	" Over & Sons—Photocases	1	5
March 15	" F. Thomson—Photographs and Albums	32	0
July 5	" Hugh Rees, Ltd.—Books	4	17
Aug. 4	" Librarian—Staff College	0	15
Oct. 4	" Hugh Rees, Ltd.—Books	0	18
Nov. 6	" Hugh Rees, Ltd.—Books	7	1
" 12	" J. Stokvis—Book and Translation...	10	8
Dec. 31	" Balance in favour of Fund	8	9
		55	5
		£139	18
		7	

We hereby certify the above Account to be correct.

6th, Fore Street, London, E.C.2.
25th January, 1924.

WHITE, FERGUSON-DAVIE, AND MILLER Chartered Accountants,
Auditors.

NINETY-THIRD ANNIVERSARY MEETING

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TABULAR ANALYSIS OF THE STATE OF THE INSTITUTION.

[A full analysis for each year from 1831 will be found in the Report for 1897.]

Year 1st Jan. to 31st Dec.	Annual Subs. received.	En- trance Fees.	Receipts (from all sources).	Life Subs. re- ceived.	Invested Funds at Cost.	Invested in the pur- chase of Books, &c.	No. of Vols. in Library.	No. of Members on the 31st Dec.
1831	£ 654	£ ...	£ 654	£ 1,194	£ ...	£ ...	...	1,437
1841	1,450	...	1,643	186	6,000	243	5,850	4,243
1851	1,136	131	1,292	66	666	34	10,150	3,188
1861	2,122	305	2,899	266	2,846	99	11,812	3,689
1871	2,455	237	3,677	538	7,748	202	15,501	3,922
1881	2,893	238	4,967	645	13,670	240	19,920	4,577
1891	2,640	189	5,004	454	21,942	153	23,845	4,204
1901	3,816	197	6,955	358	14,192	289	27,792	5,443
1902	3,806	188	7,063	449	14,491	309	28,167	5,427
1903	3,743	178	6,597	409	15,459	299	28,387	5,361
1904	3,684	184	6,707	448	15,459	301	28,636	5,313
1905	3,713	253	7,756	611	15,459	324	28,851	5,369
1906	3,714	226	6,803	519	16,488	204	29,114	5,404
1907	3,733	211	6,615	573	16,549	256	29,427	5,408
1908	3,741	220	7,205	502	16,612	213	29,667	5,420
1909	3,806	312	7,354	789	16,676	167	29,917	5,535
1910	3,893	269	7,407	573	16,742	326	30,182	5,611
1911	3,988	254	7,319	372	16,810	374	30,624	5,649
1912	4,018	225	7,125	330	16,881	305	31,043	5,654
1913	3,928	159	7,113	266	*12,141	384	31,425	5,580
1914	3,780	101	7,570	98	*12,216	231	31,770	5,338
1915	3,534	46	8,332	77	†14,276	92	31,862	5,000
1916	3,443	13	8,595	344	†13,537	110	32,064	4,980
1917	3,407	—	8,853	446	§16,414	196	32,425	4,946
1918	3,440	—	9,135	337	||21,610	124	32,602	4,955
1919	3,654	—	10,332	1,065	¶22,736	347	32,824	5,160
1920	3,524	315	8,902	817	**18,014	267	32,994	5,196
1921	3,644	380	9,069	610	††18,421	307	††27,177	5,275
1922	3,730	401	8,853	609	§§19,148	270	††25,417	5,457
1923	3,980	463	8,856	549	||||18,993	219	25,747	5,671

* Value on December 31st, 1913.

† Value on December 30th, 1916.

‡ Value on December 31st, 1918.

** Value on December 31st, 1920.

†† During the year a large number of Books of a non-Service nature were sold.

§§ Value on December 31st, 1922.

|||| Value on December 31st, 1923

† This includes £2,000 4½ per cent. War Loan.

§ Value on December 31st, 1917.

¶ Value on December 31st, 1919.

†† Value on December 31st, 1921.

REPORT AND ACCOUNTS.

THE CHAIRMAN: The first resolution is "That the Report and Accounts, as circulated, be taken as read and adopted." I beg to move that. No words are needed from me in putting the resolution, as the Chairmen of the Finance, Journal and Library, the Museum Committees will speak for their various departments.

FINANCE COMMITTEE.

COLONEL C. W. TROTTER, C.B.: My Lords and Gentlemen, There is nothing very much to say about the Finance except that the Balance Sheet is more satisfactory than it has been for a number of years and I think we may look forward to a steady improvement. You will see in the Balance Sheet that there is an overdraft at the bank of £379 2s. 0d. This was only an overdraft for two or three days, and it carried us over the year without having to sell any of our capital, as we had been obliged to do in the three or four years previous. The only other item about which somebody might ask appears on the Revenue Account. You will see that the Water Rate is lower than last year and that the Municipal Rates are higher. This is merely a question of bookkeeping. They are now made up to the 1st January and the amount paid in advance is deducted and the amount which is owing is added; that is to say, the Water Rate is taken up to the end of March, and therefore you have to make an allowance. As it appears in the Balance Sheet now it is correct.

We still want income and the only way we can get it, unless we get a windfall in the shape of reduction of the Taxes or the Municipal Rates, is to get more members. The Secretary has been wonderfully energetic in obtaining new members, and already 120 have joined this year. We hope that all members of the Institution will try to recruit as many members as they can.

JOURNAL AND LIBRARY COMMITTEE.

GENERAL SIR EDMUND BARROW, G.C.B., G.C.S.I.: I rise as the Chairman of the Journal and Library Committee. There is not very much for me to say. As regards the library, the number of officers who used it this year was 316 as compared with about 200 last year. That means an increase of about 25 per cent. This is satisfactory because the library is largely used by officers who are preparing for examinations or who are preparing articles, and it betokens a greater interest in the work of the Institution. During the past year we have actually spent less on the library than in recent years. I do not think the expenditure on a library should be the criterion, but the value you get from it. Therefore, in my opinion, economy in library matters is not to be advocated.

With regard to the Journal, we have recently had a change of Editors, the late Editor, Colonel Wyllie, having retired on account of age. We have been fortunate in securing an officer who has great qualifications for this post, and I am sure the Journal will in no way deteriorate under his care. As some of you may not

be aware of the qualifications of the present Editor for his post, or the reason why he was selected, I will just read out this extract :

"Lieut.-Commander Bell has been serving since the War in the Historical Section of the Committee of Imperial Defence. He has prepared narratives of the naval operations of the War for the Official History. Entering the Navy in 1900 his services were mostly in the Surveying Branch and Hydrographic Department of the Admiralty, where he was a Naval Assistant during the War. He was an official translator in French, Dutch, German, Italian and Spanish, and Editor of the Annual Review of Hydrography; he has also contributed largely to various unofficial publications."

I need hardly say that to be a translator in five languages is a great qualification for the Editor of a Journal which depends very largely on the information it gets from foreign sources.

I do not think there are any further remarks I need make regarding either of these branches of the Institution. I have only lately taken over the Chairmanship of the Committee, and I shall be greatly interested in performing the duties of the office during the coming year.

MUSEUM COMMITTEE.

CAPTAIN W. F. CABORNE, C.B., R.D., R.N.R. (Chairman of the Museum and General Purposes Committee): Lord Lucan, My Lords and Gentleman, I have not much to say this afternoon, for, although new exhibits are constantly being added to our priceless collection, there has not been much of outstanding importance forthcoming since our last Annual Meeting.

However, attention should be drawn to a number of horse-bits and stirrups (some of them very old) from the Royal Mews, presented by the Crown Equerry. Also, to the model of a frigate, circa 1712-1720, recently built (1920-24) and rigged by the donor, Mr. Arthur W. Nye, from contemporary drawings of a 32-gun frigate of that period.

During the year, several of the oil-paintings (among them two by Sir Joshua Reynolds) have been restored; and it is the intention to restore others as opportunity and finances will permit.

It will have been noticed that the Orrery in the Museum, which had been out of action since it came into the possession of the Institution a great number of years ago, is now working and in good order. Some time prior to the Great War, eminent firms were approached with a view to getting the Orrery set going, and it was estimated that it would cost £100 to do so. However, Lieut.-Commander Rupert T. Gould, R.N., of the Hydrographic Department of the Admiralty, a great authority upon chronometers and their mechanism, very kindly took the matter in hand, and personally cleaned and repaired the exhibit, only charging out of pocket expenses. The thanks of the Institution were voted to him by the Council for his public-spirited conduct.

Incidentally, I may mention that the India Office is presenting to the Museum three portfolios of pictures, etc., of Uniforms of the Hon. East India Company's Regiments.

It is a matter of regret that visitors to the Museum have fallen off somewhat during the past year, with a consequent diminution of income from that source; but with the millions of people expected to visit London for the British Empire Exhibition at Wembley this season, it is to be hoped that a goodly number of those persons will have time to avail themselves of the opportunity for finding their way into the Banqueting Hall.

The Institution building has been maintained in good condition throughout.

The extension by the Council of Lieut.-Colonel Sir Arthur Leetham's appointment as Secretary and Curator for a further period of two years from this date will, no doubt, meet with the cordial approval of members, insuring, as it does, a continuation of the care that he has always manifested, with the assistance of an efficient and zealous staff, for the interests of the Institution.

THE CHAIRMAN: Has any member any remarks to make on the Report or the Accounts?

If not, I will put the resolution that the Report and Accounts be adopted.

The resolution was put and carried unanimously.

AUDITORS.

MAJOR A. C. CHAMIER: My Lords and Gentlemen, I have pleasure to propose "That the thanks of the meeting be accorded to the Auditors, Messrs. Wilde, Ferguson, Davie and Miller for their services, and that they be re-elected Auditors for the ensuing year at a fee of 25 guineas."

I need hardly stress the importance to an Institution of this kind of having the accounts audited by a well-known firm of Chartered Accountants who are able to give the matter their best attention.

LIEUT.-COLONEL T. B. PHILLIPS: My Lords and Gentlemen, I have much pleasure in seconding this motion. I think we ought to add our thanks to Sir Arthur Leetham and his assistant, Mr. Pinhey, for the excellent way in which they hand over the accounts to the Auditors.

The resolution was put and carried unanimously.

VACANCIES ON THE COUNCIL.

THE CHAIRMAN: The next business is to ballot for the vacancies on the Council. A ballot was then taken, the Chairman subsequently announcing the result as follows:—

Lieut.-General Sir Noel Birch, K.C.B., K.C.M.G., Master-General of the Ordnance.

Lieut.-General Sir P. W. Chetwode, Bart., K.C.B., K.C.M.G., D.S.O.,
G.O.C.-in-C., Aldershot.
Captain W. F. Caborne, C.B., R.D.

GOLD MEDAL ESSAYS, 1923.

THE CHAIRMAN: The Secretary will report the result of the Gold Medal Essays, 1923.

THE SECRETARY: The Council, having duly considered the Report of the Referees on these essays, have awarded to the Essay numbered 12, and bearing the motto "Pro fide strictus," the Gold Medal of the Institution and the first Trench-Gascoigne Prize of 30 guineas..

The name of the writer is Captain A. H. Norman, C.M.G., R.N.

To the Essay numbered 13, bearing the motto "In the cause that is righteous sweet is the smell of powder," the second Trench-Gascoigne Prize of 20 guineas.

The name of the officer is Lieut.-Commander Guy N. W. Boyes, R.N., Officer Instructor of the Sussex Division of the Royal Naval Volunteer Reserve.

To the Essay numbered 6, bearing the motto "Who killed Cock Robin?" the third Trench-Gascoigne Prize of 10 guineas.

The name of the officer is Commander R. D. Binney, R.N.

The Referees experienced considerable difficulty in arriving at a correct decision; the Council therefore have decided to publish both the Essays, Nos. 12 and 13, in the Institution's Journal.

LIEUT.-GENERAL SIR HERBERT MILES, G.C.B., G.C.M.G., G.B.E., C.V.O.: I have great pleasure in proposing "That the thanks of the Institution be accorded the Council The Duke of Northumberland, C.B.E., M.V.O., Vice-Admiral Sir Richard Phillimore, K.C.B., K.C.M.G., M.V.O., and Captain E. Altham, C.B., R.N., for adjudicating on the Prize Essays."

Anyone who has adjudicated upon these essays knows it is really a great labour. The essays need very careful reading before one can come to a decision.

GENERAL SIR EDMUND BARROW, G.C.B., G.C.S.I.: I have much pleasure in seconding that.

The resolution was put and carried unanimously, Captain E. Altham returning thanks.

VOTE OF THANKS TO RETIRING MEMBERS OF COUNCIL.

VICE-ADMIRAL SIR HENRY BRUCE, K.C.B., C.V.O.: I have much pleasure in proposing "That the thanks of the Institution be accorded to the following retiring Members of the Council:—Lieut.-General Sir Noel Birch, K.C.B., K.C.M.G., Major-General E. T. Dickson, Major-General Sir A. Paris, K.C.B., Captain W. F.

Caborne, C.B., R.D., R.N.R., Colonel Lord Ampthill, G.C.S.I., G.C.I.E., Brigadier-General the Earl of Lucan, K.B.E., C.B., T.D., A.D.C., Colonel the Duke of Northumberland, C.B.E., M.V.O., Colonel C. W. Trotter, C.B., T.D."

MAJOR-GENERAL H. F. THUILLIER, C.B., C.M.G., R.E. : I have much pleasure in seconding that.

The resolution was then put and carried unanimously.

VOTE OF THANKS TO THE CHAIRMAN.

COLONEL LORD AMPHILL, G.C.S.I., G.C.I.E. : I have great pleasure in proposing that the thanks of the Institution be accorded to the Chairman for his conduct in the Chair.

LIEUT.-GENERAL SIR NOEL BIRCH, K.C.B., K.C.M.G. : I beg to second that.

The resolution was then put and carried unanimously.

THE CHAIRMAN : Thank you.

The Meeting then terminated.



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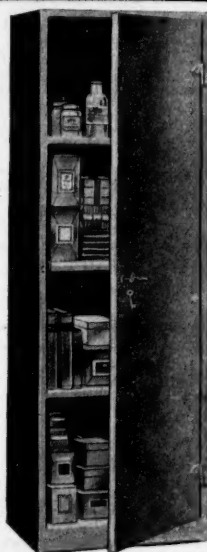
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